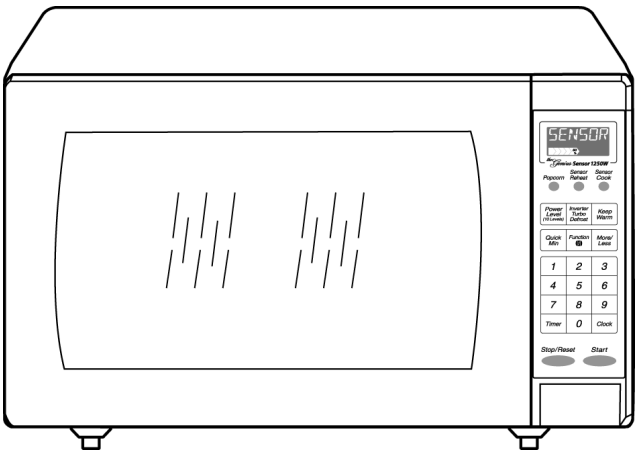
ORDER NO.PHAMOS0701005A1
E1

# Service Manual

## Microwave Oven

Simplified




# NN-SD997S
# NN-SD987S
# NN-SD967S
# NN-SN977S
# NN-SN957S
# NN-SN947S

APH(USA)
CPH(CANADA)

**Please file and use this specified manual together with the service manual for Model NN-T695 (ORDER NO. PHAMOS0501001C7).**

## Specifications:

| Model: / Specifications: | SD997S APH | SD997S CPH | SD987S APH<br>SD987SB APH | SD967S APH | SN977S APH | SN957S APH | SN947S APH |
|---|---|---|---|---|---|---|---|
| Power Source: | 120V AC Single Phase, 60Hz | | | | | | |
| Power Requirement: | 1460W | 1460W | 1460W | 1460W | 1460W | 1460W | 1460W |
| Output: | 1250W | 1200W | 1250W | 1250W | 1250W | 1250W | 1250W |
| Microwave Frequency: | 2450MHz | | | | | | |
| Timer: | 30 min. / Stage (HIGH Power) ~ 5 Stage Maximum<br>90 min. 00 sec or 99 min. 99 sec / Stage (Other Power Levels) ~ 5 Stage Maximum | | | | | | |
| Outside Dimensions:<br>(W) X (D) X (H) | 23 7/8"(W) X 20"(D) X 14"(H)<br>606mm(W) x 509mm(D) x 356mm(H) | | | 23 7/8"(W) X 19 7/16"(D) X 14"(H)<br>606mm(W) x 493mm(D) x 356mm(H) | | | |
| Oven Cavity Dimensions: | 18 7/16"(W) X 18 1/2"(D) X 10 15/16"(H)<br>469mm(W) x 470mm(D) x 278mm(H) | | | | | | |
| Oven Cavity Dimensions: | 2.2 cu. ft. | | | | | | |
| Weight: | Approx. 37 lbs./16.7 kg | | | | | | |
| PbF | This product with PbF | | | | | | |
| Specifications subject to change without notice. | | | | | | | |

Panasonic®

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## ⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

## WARNING

1. This product should be serviced only by trained, qualified personnel.
2. Though this product has been manufactured in compliance with:
   "Federal Performance Standard 21 CFR Subchapter J"(D.H.H.S): U.S.A. models
   or "Radiation Emitting Devices Act"(Health and Welfare Canada): Canadian models
   it is very important all repairs should be made in accordance with procedures described in this manual to avoid being exposed to excessive microwave radiation.
3. Check for radiation leakage before and after every servicing according to the "procedure for measuring radiation leakage."
4. If the unit cannot be repaired on site, advise the customer not to use until unit is repaired.
5. Any serviceman who learns of any accident pertaining to microwave radiation leakage including the oven operating with open door should immediately notify the appropriate address listed below and Center for Devices and Radiological Health, DHHS.

| | | | |
|---|---|---|---|
| IN U.S.A. (PSTC) | Panasonic Services Company<br>50 Meadowland Parkway,<br>Secaucus, New Jersey 07094<br>Attention: Technical Service Division.<br>(201)348-7000 | IN PUERTO RICO (PSC) | PSC<br>San Gabriel Industrial Park<br>65th Infantry Ave. Km.9.5<br>Carolina, Puerto Rico 00985<br>(787)750-4300 |
| | | IN CANADA (PCI) | Panasonic Canada Inc.<br>5770 Ambler Drive, Mississauga,<br>Ontario, L4W2T3<br>(905)624-5010 |

6. There are special components used in the microwave oven which are important for safety. These parts are marked with a ⚠ on the replacement parts list. It is essential that these critical parts should be replaced only with the manufacture's specified parts to prevent microwave leakage, shock, fire, or other hazards. Do not modify the orginal design.

# PRECAUTIONS TO BE OBSERVED BEFORE AND DURING SERVICING TO AVOID POSSIBLE EXPOSURE TO EXCESSIVE MICROWAVE ENERGY

(A) Do not operate or allow the oven to be operated with the door open.
(B) Make the following safety checks on all ovens to be serviced before activating the magnetron or other microwave source, and make repairs as necessary:
  (1) Interlock operation
  (2) Proper door closing
  (3) Seal and sealing surfaces (arcing, wear, and other damage)
  (4) Damage to or loosening of hinges and latches.
  (5) Evidence of dropping or abuse
(C) Before turning on microwave power for any service test or inspection within the microwave generating compartments, check the magnetron, waveguide or transmission line, and cavity for proper alignment, integrity and connections.
(D) Any defective or misadjusted components in the interlock, monitor, door seal, and microwave generation and transmission systems shall be repaired, replaced, or adjusted by procedures described in this manual before the oven is released to the owner.
(E) A microwave leakage check to verify compliance with the Federal Performance Standard should be performed on each oven prior to release to the owner.

## CAUTION

**About lead free solder (PbF)**

**Distinction of PbF PCB:** PCBs (manufactured) using lead free solder will have a PbF stamp on the PCB.

**Caution:**
- Pb free solder has a higher melting point than standard solder; Typically the melting point is 30 - 40˚C higher. Please use a high temperature soldering iron. In case of the soldering iron with temperature control, please set it to 370 ± 10˚C.
- Pb free solder will tend to splash when heated too high (about 600˚C).

**DANGER OF HIGH VOLTAGE AND HIGH TEMPERATURE (HOT/LIVE) OF THE INVERTER POWER SUPPLY (U)**

## INVERTER WARNING

**This Inverter board looks like a regular PCB. However, this PCB drives the magnetron tube with extremely high voltage and high current.** NEW H.V.

**IT HAS:**

1. **Very high voltage and high current circuits.**
   **It functions the same as the high voltage transformer and high voltage capacitor in ordinary microwave ovens.**
2. **Aluminum heat sink that is energized with very high voltage and high heat energy.**
3. **Very high voltage which may remain in circuitry even when oven is off. High voltage charge may remain in the capacitors on the board.**

**DO NOT:**

* 1. **Do not touch circuitry because it has very hot (high voltage) circuitry. Even when replacing board, extreme care should be taken to avoid possible electric shock hazards. High voltage charge may remain in circuits.**

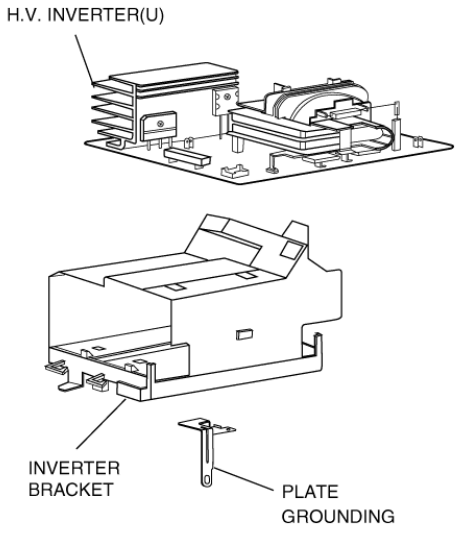
* 2. **Do not touch aluminum heat sink because it is energized with very high voltage and is also very hot in high heat energy.**

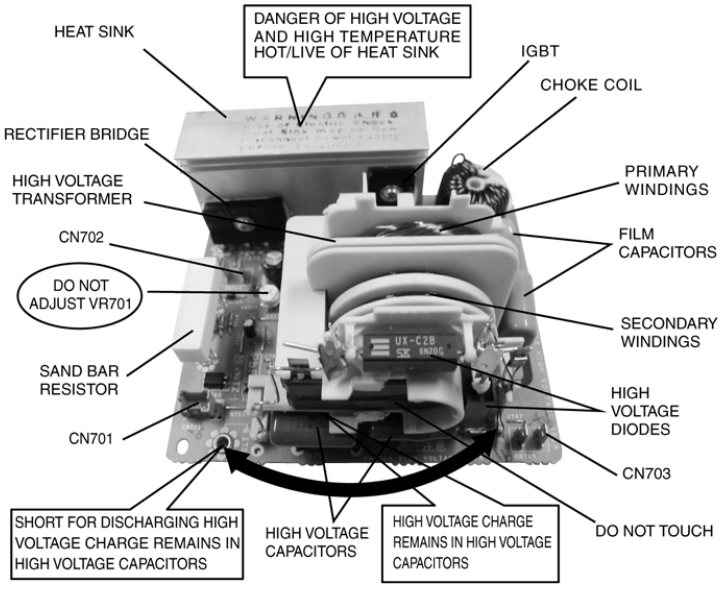
* 3. **Do not try to adjust or tamper with preset control on the Inverter board because it is very dangerous to adjust without proper test equipment.**

* 4. **Do not test oven while Inverter grounding plate or screws are loose. It is very dangerous to operate H.V. Inverter Circuit (U) with loose mounting screws or if improperly grounded.**

* 5. **For USA only:**
**Do not try to repair Inverter PCB because it is very dangerous to repair. Replace as a complete High Voltage Inverter Circuit unit and return fully re-packed in original shipping box and shipping materials.**

## INVERTER POWER SUPPLY



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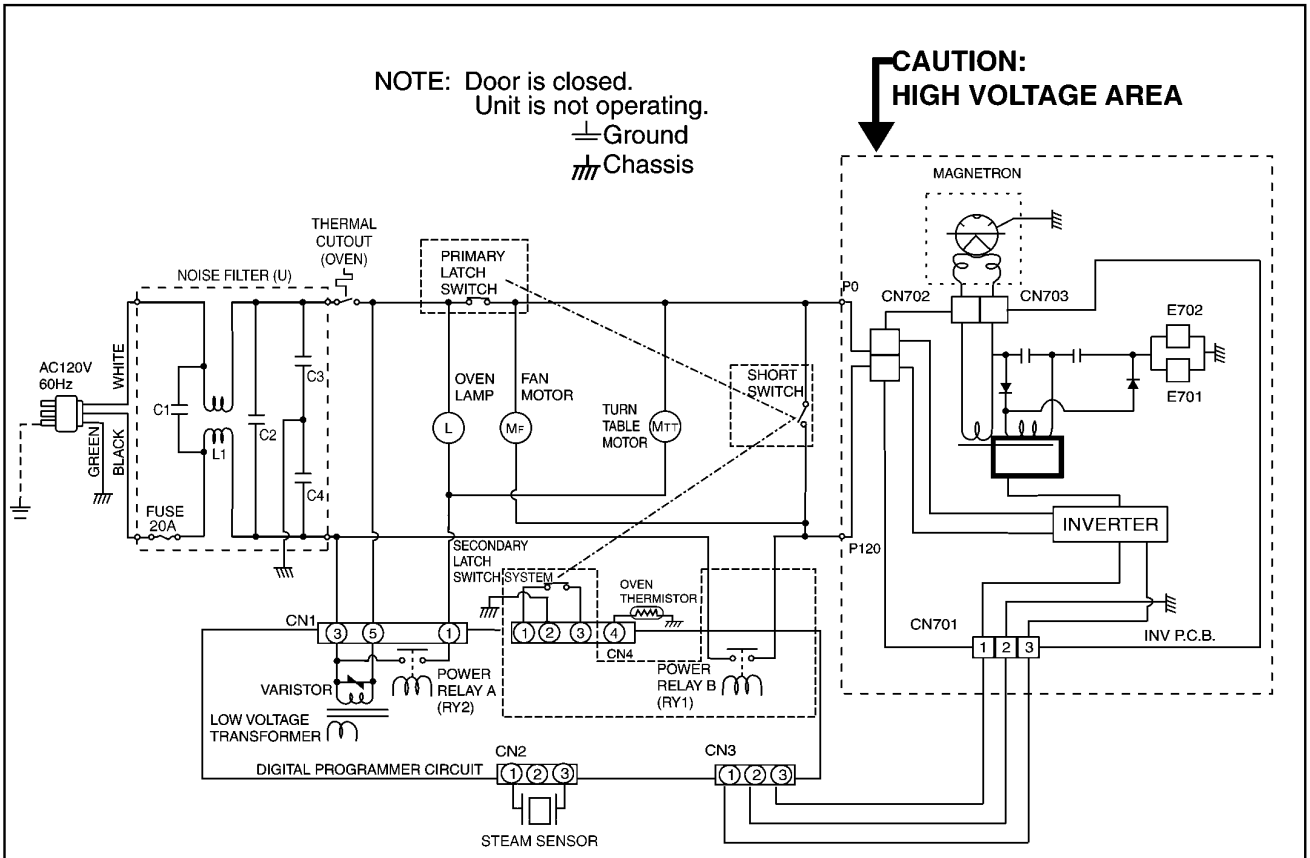
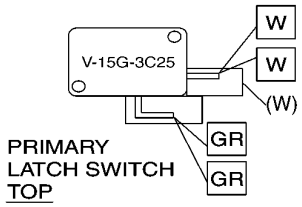
# 1 SCHEMATIC DIAGRAM

## 1.1. APH

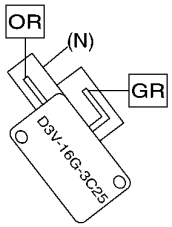



**WIRING DIAGRAM (APH)**

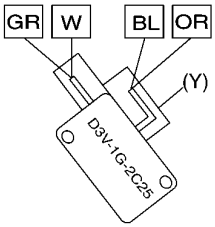
**NOTE: * When replacing, check the lead wire color as shown.**
***Colors shown by ( ) indicate colors of lead wire connector housing.**



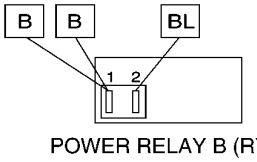

PRIMARY LATCH SWITCH TOP



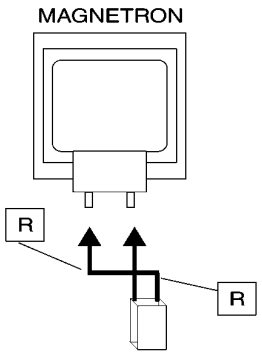

SECONDARY LATCH SWITCH BOTTOM (OUTSIDE)

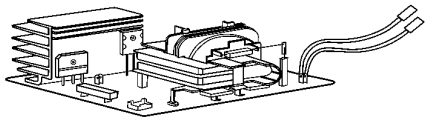



SHORT LATCH SWITCH BOTTOM (INSIDE)




POWER RELAY B (RY1)

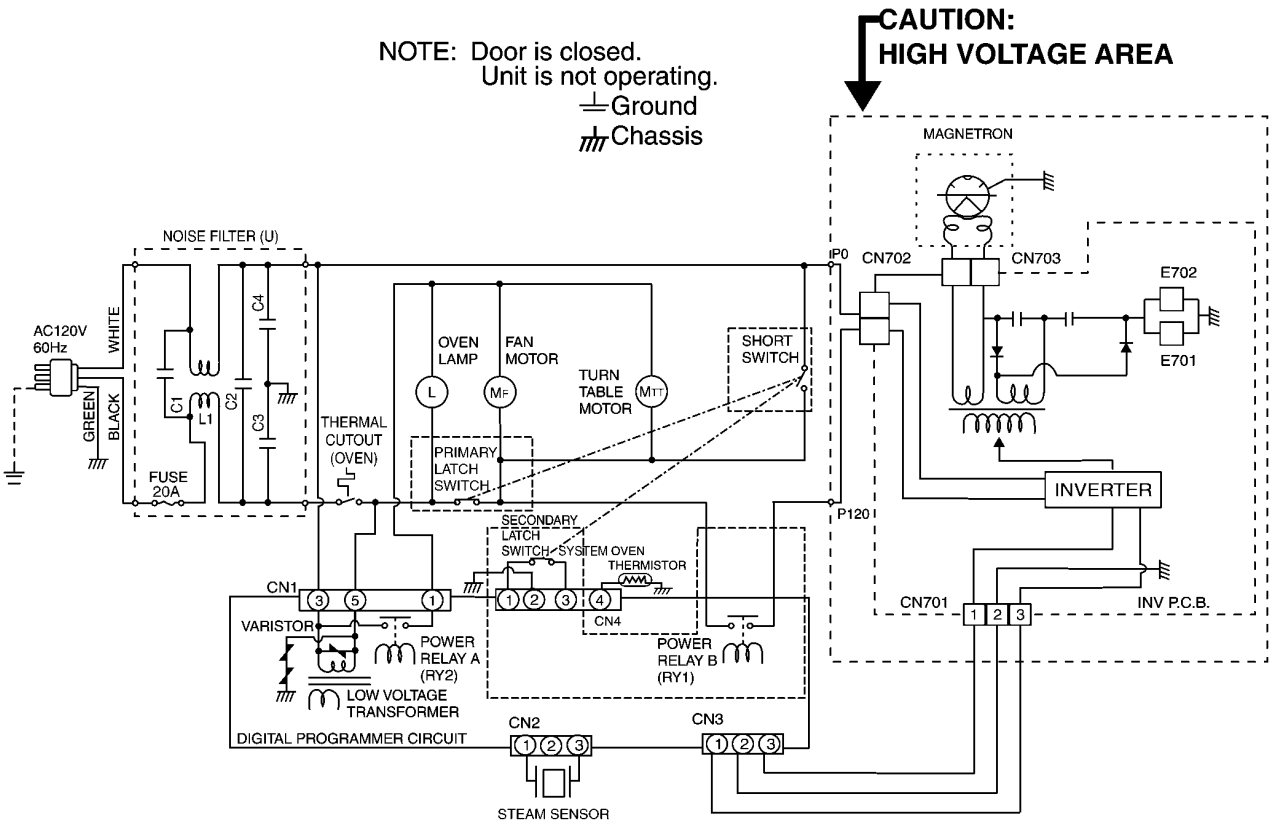


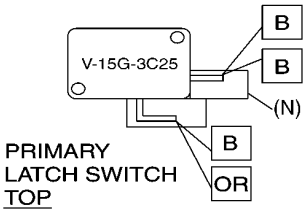
HIGH VOLTAGE INVERTER

| SYMBOL | COLOR |
|---|---|
| OR | ORANGE |
| BL | BLUE |
| BR | BROWN |
| W | WHITE |
| Y | YELLOW |
| R | RED |
| GR | GRAY |
| B | BLACK |
| N | NATURAL |

# 1.2. CPH




**WIRING DIAGRAM (CPH)**




PRIMARY
LATCH SWITCH
TOP

**NOTE: * When replacing, check the lead wire color as shown.**
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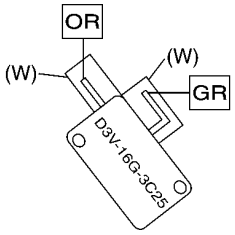
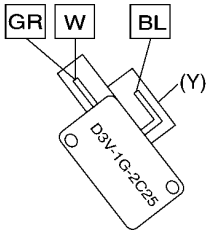
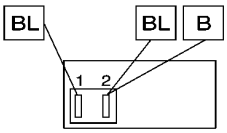


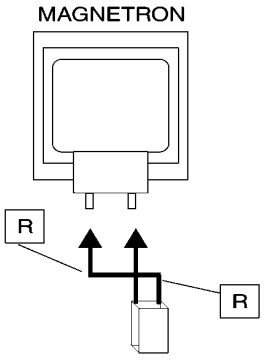

SECONDARY
LATCH SWITCH
BOTTOM (OUTSIDE)

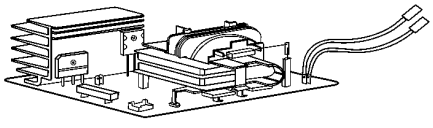



SHORT
LATCH SWITCH
BOTTOM (INSIDE)




POWER RELAY B (RY1)



HIGH VOLTAGE INVERTER

| SYMBOL | COLOR |
|---|---|
| OR | ORANGE |
| BL | BLUE |
| BR | BROWN |
| W | WHITE |
| Y | YELLOW |
| R | RED |
| GR | GRAY |
| B | BLACK |
| N | NATURAL |

# 2 MEASUREMENTS AND ADJUSTMENTS

**WARNING**

* For continued protection against radiation hazard, replace only with identical replacement parts (For touch models part No. J61415G10XN, Type No. V-15G-3C25 for primary latch switch; Part No. J61414T00AP, Type No. D3V-16G-3C25 for Secondary latch switch and Part No. J61784T00AP, Type No. D3V-1G-2C25 for short switch.)
* When the 20 Amp. fuse is blown due to the operation of the short switch, you must replace power relay B (part No. AEBGJQC25F18, Type No.G5G-1A18VDC), Primary latch switch and the short switch. Then follow the installation procedures below.
* Interlock switch replacement In replacing faulty switches, be sure mounting tabs are not bent, broken or otherwise deficient in their ability to hold the switches.
* Refer to schematic diagram to ensure proper connection.

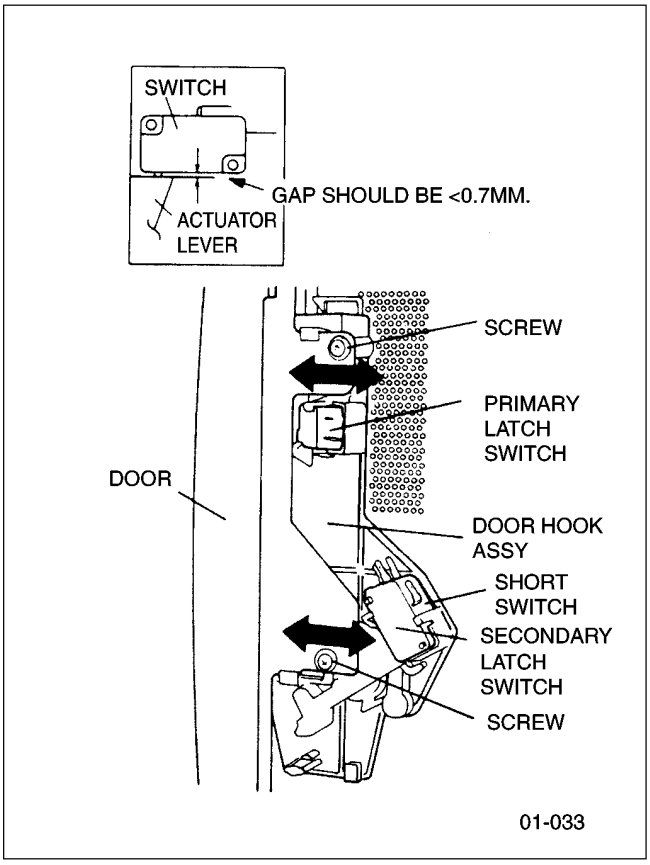
## 2.1. Adjustment of primary latch switch, secondary latch switch and short switch.

1. Mount the Primary latch switch, the Secondary latch switch and the short switch to the door hook assembly as shown in ILL.

   **NOTE:**

   **No specific individual adjustments during installation of the Primary latch switch, Secondary latch switch or Short switch to the door hook are required.**

2. When mounting the door hook assembly to the oven assembly, adjust the door hook assembly by moving it in the direction of the arrows in the illustration so that the oven door will not have any play in it. Check for play in the door by pulling the door assembly. Make sure that the latch keys move smoothly after adjustment is completed. Completely tighten the screws holding the door hook assembly to the oven assembly.
3. Reconnect the short switch and check the continuity of the monitor circuit and all latch switches again by following the component test procedures.




## 2.2. Measurement of microwave output

The output power of the magnetron can be determined by performing IEC standard test procedures. However,due to the complexity of IEC test procedures, it is recommended to test the magnetron using the simple method outlined below.

Necessary Equipment:

*1 liter beaker *Glass thermometer
*Wrist watch or stopwatch

**NOTE:**

**Check the line voltage under load.Low voltage will lower the magnetron output. Take the temperature readings and heating time as accurately as possible.**

1. Fill the beaker with exactly one liter of tap water.Stir the water using the thermometer and record the water's temperature. (recorded as T1).
2. Place the beaker on the center of glass tray.
   Set the oven for High power and heat it for exactly one minute.
3. Stir the water again and read the temperature of the water. (recorded as T2).
4. The normal temperature rise at High power level for each model is as shown in table.

**TABLE (1L-1min.test)**

| RATED OUTPUT | TEMPERATURE RISE |
|---|---|
| 1200W | Min. 18.5°F(10.3°C) |
| 1300W | Min. 19.8°F(11.1°C) |

# 3 PROCEDURE FOR MEASURING MICROWAVE ENERGY LEAKAGE

**WARNING**

Check for radiation leakage after every servicing. Should the leakage be more than 2 mW/cm$^2$ (1mW/cm$^2$ for Canada) inform PSTC, PSC, or PCI immediately. After repairing or replacing any radiation safety device, keep a written record for future reference, as required by D.H.H.S. and Health and Welfare Canada regulation. This requirement must be strictly observed. In addition, the leakage reading must be recorded on the service repair ticket while in the customer's home.

**NOTE:**

**The U.S. Government standard is 5 mW/cm$^2$ while in the customer's home. 2mW/cm$^2$ stated here is our own voluntary standard. (1mW/cm$^2$ for Canada)**

## 3.1. Equipment

- Electromagnatic radiation monitor
- Glass thermometer 212°F or 100°C
- 600cc glass beaker

## 3.2. Procedure for measuring radiation leakage

Note before measuring.

- Do not exceed meter full scale deflection. Leakage monitor should initially be set to the highest scale.
- To prevent false readings the test probe should be held by the grip portion of the handle only and moved along the shaded area in Figure no faster than 1 inch/sec (2.5cm/sec).
- Leakage with the outer panel removed ..... less than 5mW/cm$^2$.
- Leakage for a fully assembled oven with door normally closed ..... less than 2mW/cm$^2$ (1mW/cm$^2$ for Canada).
- Leakage for a fully assembled oven [Before the latch switch (primary) is interrupted] while pulling the door ..... less than 2mW/cm$^2$.

1. Pour 275 ± 15cc (9ozs$^s$± 1/2oz) of 20°C ± 5°C (68° ± 9°F) water in a beaker which is graduated to 600cc, and place in the center of the oven.
2. Set the radiation monitor to 2450MHz and use it following the manufacturer´s recommended test procedure to assure correct results.
3. When measuring the leakage, always use the 2 inch (5cm) spacer supplied with the probe.
4. Tap the start pad or set the timer and with the magnetron oscillating, measure the leakage by holding the probe perpendicular to the surface being measured.

### 3.2.1. Measurement with the outer panel removed.

Whenever you replace the magnetron, measure for radiation leakage before the outer panel is installed and after all necessary components are replaced or adjusted. Special care should be taken in measuring around the magnetron.

**WARNING**

Avoid contacting any high voltage parts.

### 3.2.2. Measurements with a fully assembled oven.

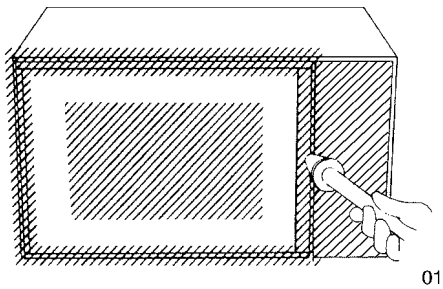
After all components, including outer panel are fully assembled, measure for radiation leakage around the door periphery, the door viewing window, the exhaust opening, control panel and air inlet openings.

## 3.3. Record keeping and notification after measurement

- After any adjustment or repair to a microwave oven, a leakage reading must be taken. Record this leakage reading on the repair ticket even if it is zero.

  A copy of this repair ticket and the microwave leakage reading should be kept by repair facility.
- Should the radiation leakage be more than 2 mW/cm$^2$ (1mW/cm for Canada) after determining that all parts are in good condition, functioning properly, and genuine replacement parts as listed in this manual have been used, immediately notify PSTC, PSC or PCI.

## 3.4. At least once a year, have the radiation monitor checked for calibration by its manufacturer.



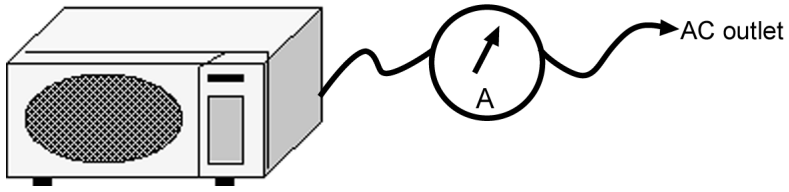
# 4 SIMPLE WAY OF H.V. INVERTER/MAGNETRON TROUBLESHOOTING

**Purpose:**

Simple way **(3/37 seconds rule)** of identifying whether it's Magnetron, Inverter, or others.

**Set-up:**

The unit under question is connected through the Ammeter as shown below.




**Procedure:**

Follow the matrix table below to identify the problem source.

**Note:**

**Do not replace both Inverter board and Magnetron simultaneously and automatically without going through this procedure.**

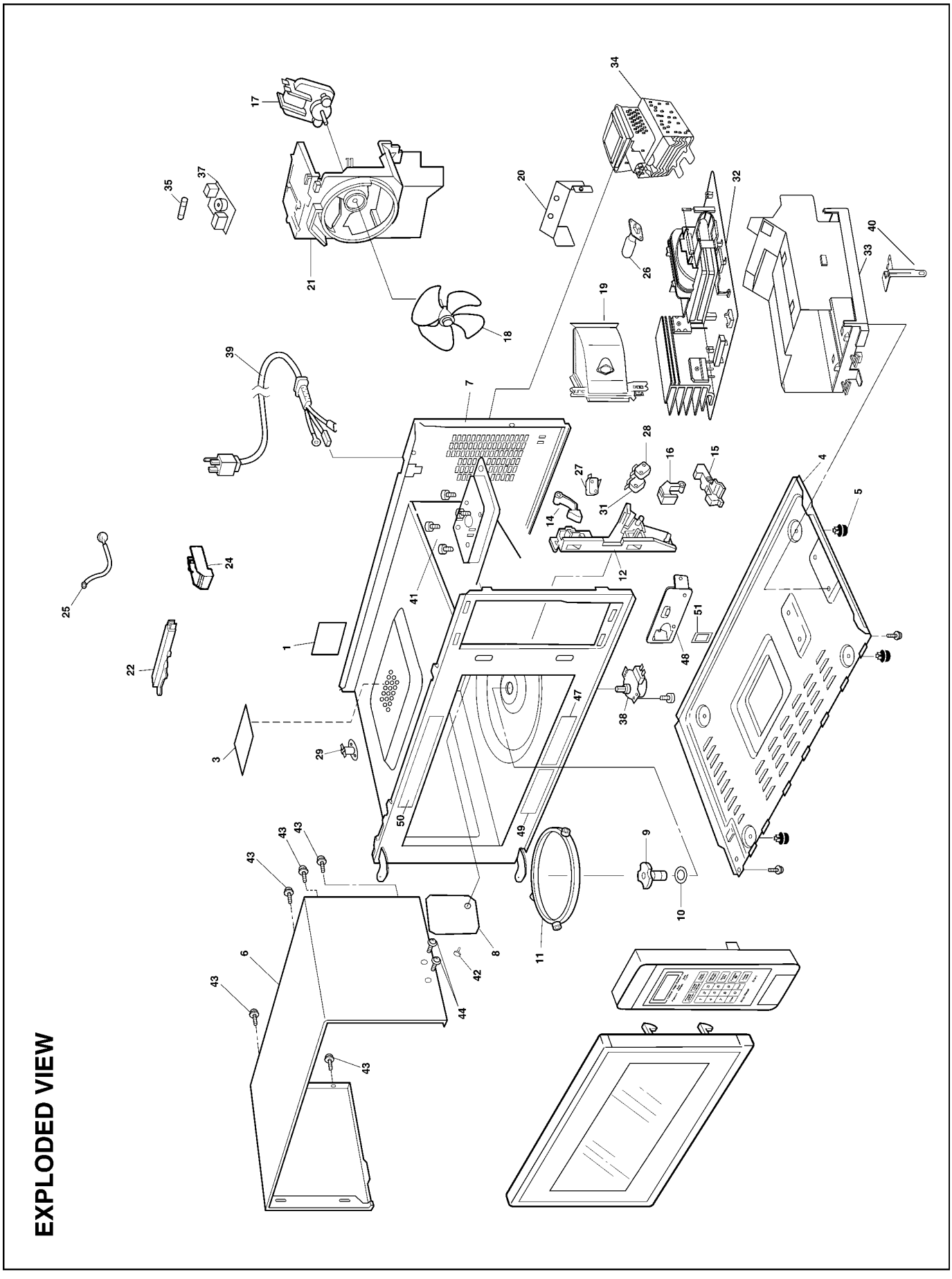
| Power will: | Ammeter reading is: | To do: | Remedy: |
|---|---|---|---|
| Shut off in 37 seconds after "Start". | 1. Between 0.5A and 1.0A. | Check and repair open magnetron circuit | Open magnetron wiring between Inverter and magnetron terminal. |
| | 2. Between 1.0A and 2.0A. | Check continuity of D702 in Inverter PCB. | |
| | | ⇩ | |
| | | 1. D702 shorted | Replace **H.V.Inverter**(F606Y8M00AP) |
| | | 2. D702 is OK | Replace **magnetron** |
| Shut off in 3 seconds after "Start" | 1. Less than 0.5A | Check open circuit: Latch Switch, DPC, Power Relay and CN701 | Replace defective component(s), or correct switch, cables and connectors. |

# 5 H.V.INVERTER BOARD MAIN PARTS LIST (F606Y8M00AP)

| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| DB701 | | B0FBBS000001 | BRIDGE DIODE | 1 | 20A, 600V |
| L701 | | F50206G00AP | CHOKE COIL | 1 | |
| Q701 | | B1JAGV000015 | TRANSISTOR SI | 1 | 1000V |
| T701 | ⚠ | A609A8M00AP | H.V. TRANSFORMER | 1 | (INCLUDING D701,D702,C706,C707) |
| C701 | | ECWF5284N300 | CAPACITOR | 1 | 0.28µF/500V |
| C702 | | ECWF2455N644 | CAPACITOR | 1 | 4.5µF/250V |

# 6 EXPLODED VIEW AND PARTS LIST

## 6.1. EXPLODED VIEW



# 6.2. PARTS LIST

**NOTE:**

1. When ordering replacement part(s), please use part number(s) shown in this part list.
   Do not use description of the part.
2. Important safety notice:
   Components identified by ⚠ mark have special characteristics important for safety.
   When replacing any of these components, use only manufacture's specified parts.

**NOTE:**

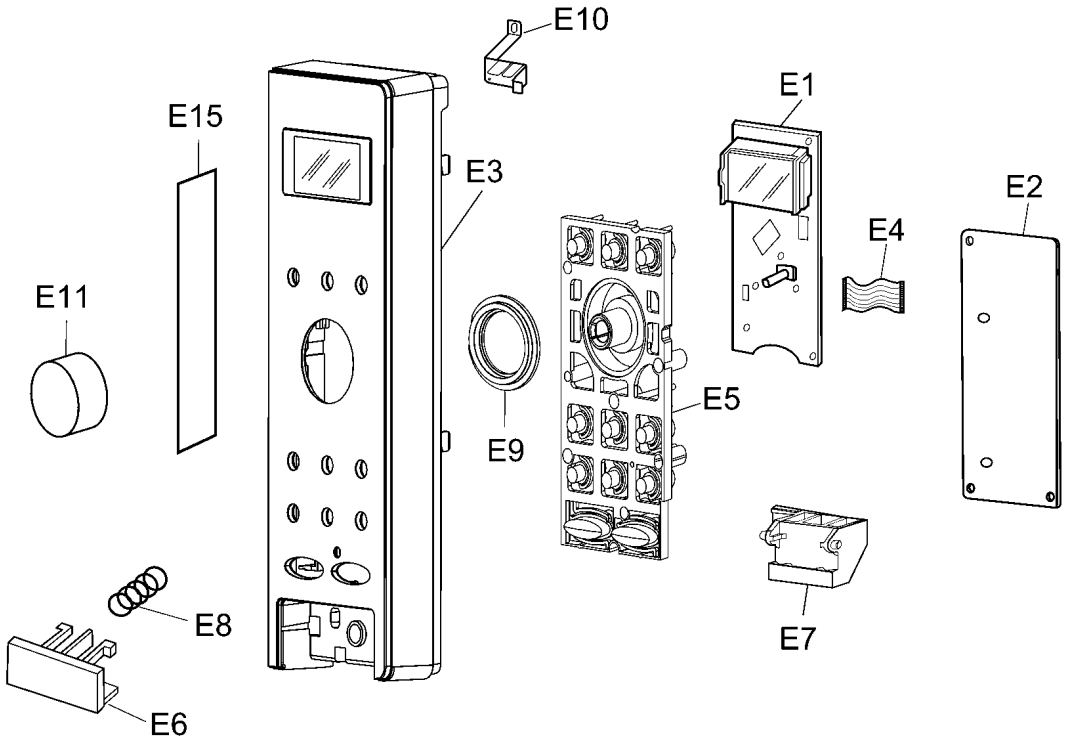
"A" parts are supplied by MOBU (Japan)

"F" parts are supplied by PHAMOS (China)

| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| 1 | | F00064W70AP | CAUTION LABEL | 1 | APH |
| 1 | | F00067600CP | CAUTION LABEL | 1 | CPH |
| 3 | | F00338F00AP | FUSE LABEL | 1 | |
| 4 | | F10016P40AP | BASE | 1 | |
| 5 | | F10084T00AP | RUBBER FOOT | 4 | |
| 6 | | F110D5W10SAP | CABINET BODY | 1 | SD997S APH,SN977S APH |
| 6 | | F110D6G10SAP | CABINET BODY | 1 | SD997S CPH |
| 6 | | F110D5W20SAP | CABINET BODY | 1 | SD987S/SB APH,SD967S APH, SN957S APH,SN947S APH |
| 7 | ⚠ | F200A8D00AP | OVEN | 1 | |
| 8 | | F20555K00AP | COVER | 1 | |
| 9 | | F21315Y00AP | PULLY SHAFT | 1 | |
| 10 | | F2177-F80 | WASHER | 1 | |
| 11 | | F290D9330AP | ROLLER RING(U) | 1 | |
| 12 | ⚠ | F3020-1200 | DOOR HOOK | 1 | |
| 14 | | F3136-1200 | HOOK LEVER A | 1 | |
| 15 | | F31374650AP | HOOK LEVER B | 1 | |
| 16 | | F31384650AP | HOOK LEVER C | 1 | |
| 17 | | F400A8F00AP | FAN MOTOR | 1 | AC120V,SINGLE PHASE,60Hz |
| 18 | | F40084T00AP | FAN BLADE | 1 | |
| 19 | | F40254W00AP | AIR GUIDE A | 1 | |
| 20 | | F40264T60APG | AIR GUIDE B | 1 | |
| 21 | | F41445W00AP | ORIFICE | 1 | |
| 22 | | F64508660AP | SENSOR COVER B | 1 | |
| 24 | | F65434W00AP | SENSOR COVER C | 1 | |
| 25 | | A607S4M00AP | STEAM SENSOR | 1 | |
| 26 | | F612E5Y30AP | INCANDESCENT LAMP (U) | 1 | 125V,60Hz |
| 27 | ⚠ | J61415G10XN | MICRO SWITCH | 1 | (PRIMARY LATCH SWITCH)(V-15G-3C25) |
| 28 | ⚠ | J61414T00AP | MICRO SWITCH | 1 | (SECONDARY LATCH SWITCH)(D3V-16G-3C25) |
| 29 | ⚠ | F61456N60AP | THERMAL CUTOUT | 1 | 150°C/-20°C |
| 31 | ⚠ | F61785U30XN | MICRO SWITCH | 1 | (SHORT SWITCH)(D3V-1G-2C25) |
| 32 | ⚠ | F606Y8M00AP | H.V.INVERTER (U) | 1 | |
| 33 | | F65856K50AP | INVERTER BRACKET | 1 | |
| 34 | ⚠ | 2M261-M32KLP | MAGNETRON | 1 | APH |
| 34 | ⚠ | 2M261-M32JP | MAGNETRON | 1 | CPH |
| 35 | ⚠ | F62308F20AP | FUSE | 1 | 20A |
| 37 | | F692Y8F00APX | NOISE FILTER | 1 | |
| 38 | | F63265G60AP | TURNTABLE MOTOR | 1 | |
| 39 | ⚠ | F900C4T60CP | AC CORD W/PLUG | 1 | APH |
| 39 | ⚠ | F900C8E00CP | AC CORD W/PLUG | 1 | CPH |
| 40 | | F66626G10AP | GROUNDING PLATE | 1 | |
| 41 | | XTWFA4+12T | SCREW | 4 | FOR MAGNETRON |
| 42 | | F90804W00AP | CANOE CLIP | 1 | FOR COVER |
| 43 | | XTTBFE4T12A0 | SCREW | 5 | FOR CABINET BODY |
| 44 | | XTTFA4+6BN | SCREW | 2 | FOR CABINET BODY SIDE |
| 46 | | F02445Y00AP | CAUTION LABEL | 1 | SD997S APH/CPH,SD987S/SB APH,SN977S APH |
| 47 | | F03347B60AP | MENU LABEL | 1 | SD997S APH,SD987S/SB APH,SD967S APH |
| 47 | | F03347B60CP | MENU LABEL | 1 | SD997S CPH |
| 48 | | F82574U00AP | DOOR OPENING BRACKET | 1 | SD967S APH,SN947S APH |
| 48 | | F82575W00AP | DOOR OPENING BRACKET | 1 | EXCEPT SD967S APH & SN947S APH |
| 49 | | F04467D00AP | FUNCTION LABEL | 1 | SD997S APH,SD987S/SB APH,SD967S APH |
| 49 | | F04467D00CP | FUNCTION LABEL | 1 | SD997S CPH |
| 50 | | F00067C50AP | CAUTION LABEL | 1 | APH |
| 50 | | F00067C50CP | CAUTION LABEL | 1 | CPH |
| 51 | | F11406G00AP | LEVER STOPPER | 1 | SD997S APH/CPH,SD987S/SB APH,SN977S APH |

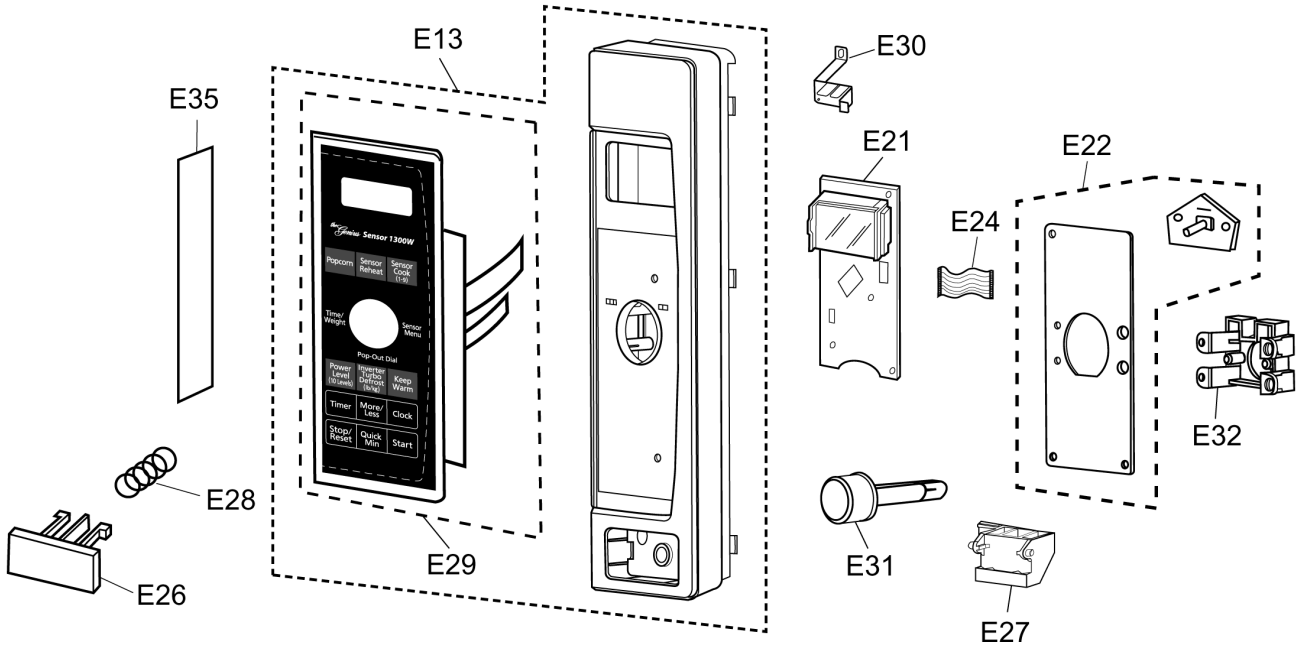
# 6.3. ESCUTCHEON BASE ASSEMBLY

## 6.3.1. NN-SD997S APH/CPH, SD987S/SB APH



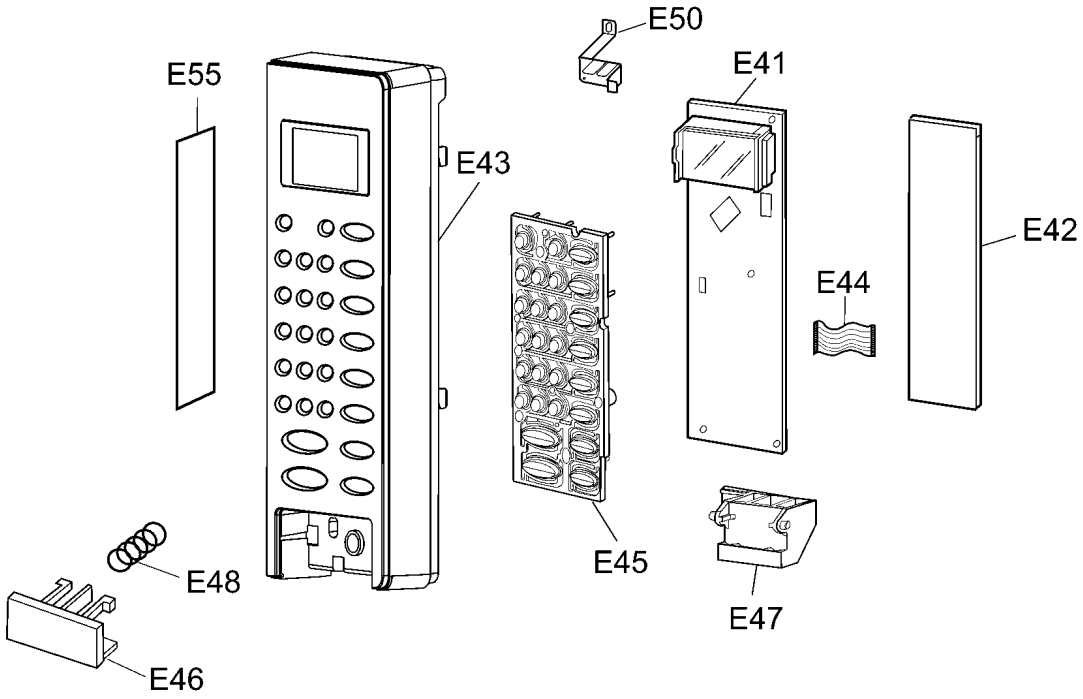

| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| E1 | | F603L8P00AP | D.P.CIRCUIT (AU) | 1 | SD997S APH,SD987S/SB APH |
| E1 | | F603L8P00CP | D.P.CIRCUIT (AU) | 1 | SD997S CPH |
| E2 | | F603Y8P00AP | D.P.CIRCUIT (DU) | 1 | SD997S APH,SD987S/SB APH |
| E2 | | F603Y8P00CP | D.P.CIRCUIT (DU) | 1 | SD997S CPH |
| E3 | | F800L8P00SAP | ESCUTCHEON BASE (U) | 1 | SD997S APH,SD987S/SB APH |
| E3 | | F800L8P00SCP | ESCUTCHEON BASE (U) | 1 | SD997S CPH |
| E4 | | F66167D00AP | FLAT CABLE | 1 | SD997S APH/CPH,SD987S/SB APH |
| E5 | | F82988P00SAP | BUTTON | 1 | SD997S APH/CPH,SD987S/SB APH |
| E6 | | F891P6G00SAP | DOOR OPENING BUTTON (U) | 1 | SD997S APH/CPH,SD987S/SB APH |
| E7 | | F82565W00AP | DOOR OPENING LEVER | 1 | SD997S APH/CPH,SD987S/SB APH |
| E8 | | F80375K00AP | COOK BUTTON SPRING | 1 | |
| E9 | | F80098P00AP | LED COVER A | 1 | SD997S APH/CPH,SD987S/SB APH |
| E10 | | F90095X00AP | GROUNDING PANEL | 1 | SD997S APH/CPH,SD987S/SB APH |
| E11 | | F83928P00KAP | DIAL | 1 | SD997S APH/CPH,SD987S/SB APH |
| E15 | | F00078P00SAP | NAME PLATE | 1 | SD997S APH |
| E15 | | F00078P00SCP | NAME PLATE | 1 | SD997S CPH |
| E15 | | F00078P10SAP | NAME PLATE | 1 | SD987S/SB APH |

## 6.3.2. NN-SD967S APH



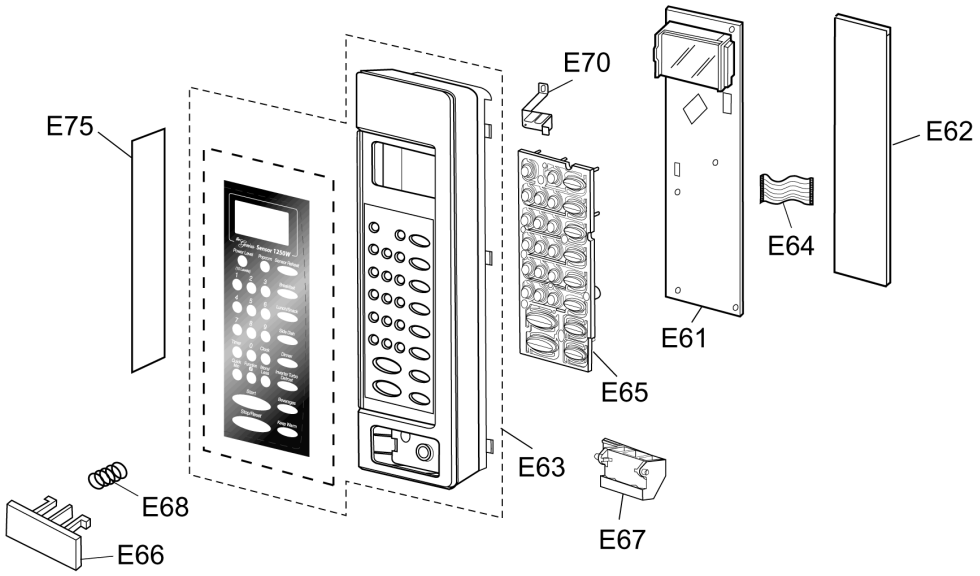

| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| E21 | | F603L8P30AP | D.P.CIRCUIT (AU) | 1 | SD967S APH |
| E22 | | F603Y7A10AP | D.P.CIRCUIT (DU) | 1 | SD967S APH |
| E23 | | F800L8P30SAP | ESCUTCHEON BASE (U) | 1 | SD967S APH |
| E24 | | F66167D00AP | FLAT CABLE | 1 | SD967S APH |
| E26 | | F80724M60SCP | DOOR OPENING BUTTON (U) | 1 | SD967S APH |
| E27 | | F82564M60AP | DOOR OPENING LEVER | 1 | SD967S APH |
| E28 | | F80375K00AP | COOK BUTTON SPRING | 1 | |
| E29 | | F630Y7A10SAP | MEMBRANE SWITCH (U) | 1 | SD967S APH |
| E30 | | F90095X00AP | GROUNDING PANEL | 1 | SD967S APH |
| E31 | | F803G7D00BAP | POP-UP DIAL (U) | 1 | SD967S APH |
| E32 | | F80187D00BAP | BACKSTOP | 1 | SD967S APH |
| E35 | | F00078P30SAP | NAME PLATE | 1 | SD967S APH |

## 6.3.3. NN-SN977S APH



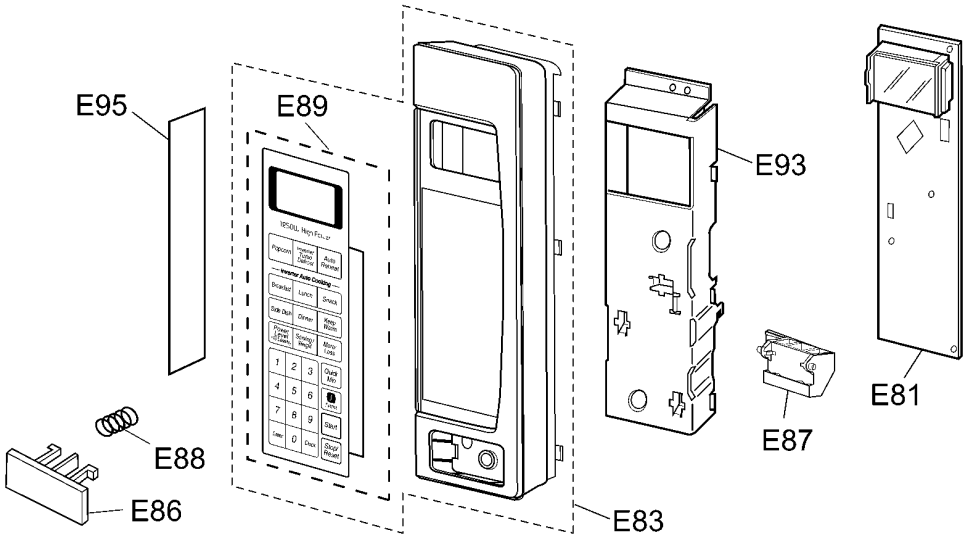

| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| E41 | | F603L8P50AP | D.P.CIRCUIT (AU) | 1 | SN977S APH |
| E42 | | F603Y5W00AP | D.P.CIRCUIT (DU) | 1 | SN977S APH |
| E43 | | F800L8P50SAP | ESCUTCHEON BASE (U) | 1 | SN977S APH |
| E44 | | F66164W20AP | FLAT CABLE | 1 | SN977S APH |
| E45 | | F82986G00SAP | BUTTON | 1 | SN977S APH |
| E46 | | F891P8P50SAP | DOOR OPENING BUTTON (U) | 1 | SN977S APH |
| E47 | | F82565W00AP | DOOR OPENING LEVER | 1 | SN977S APH |
| E48 | | F80375K00AP | COOK BUTTON SPRING | 1 | |
| E50 | | F90095X00AP | GROUNDING PANEL | 1 | SN977S APH |
| E55 | | F00078P50SAP | NAME PLATE | 1 | SN977S APH |

## 6.3.4. NN-SN957S APH



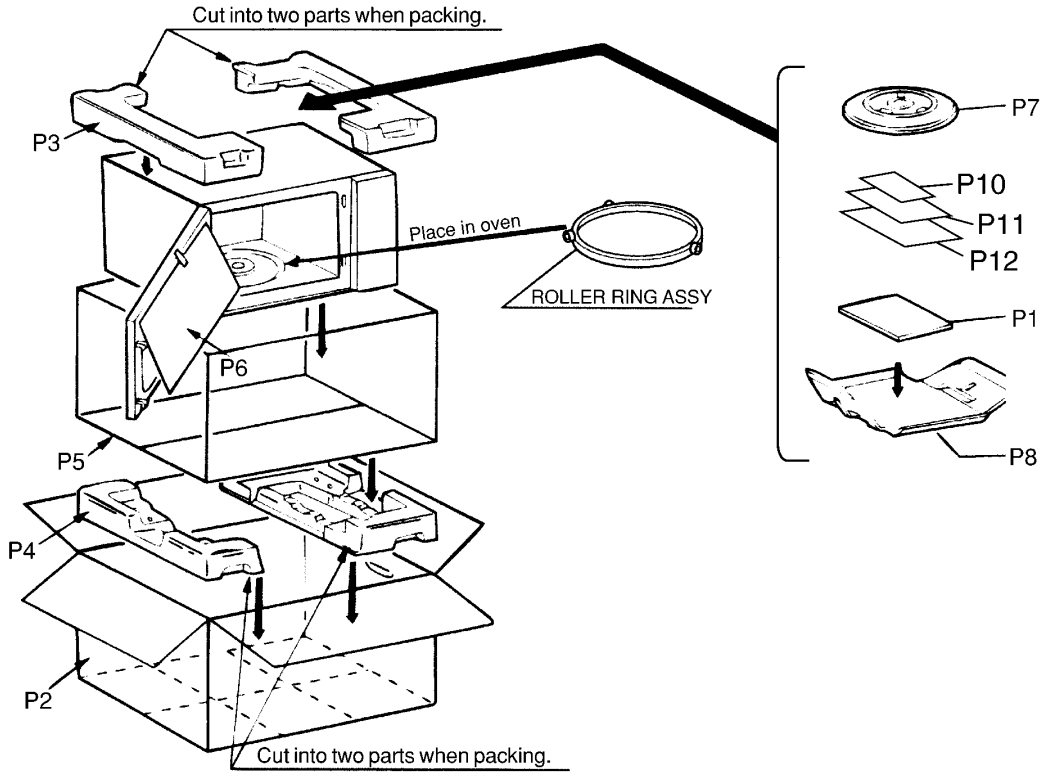

| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| E61 | | F603L8P70AP | D.P.CIRCUIT (AU) | 1 | SN957S APH |
| E62 | | F603Y5W00AP | D.P.CIRCUIT (DU) | 1 | SN957S APH |
| E63 | | F800L8P70SAP | ESCUTCHEON BASE (U) | 1 | SN957S APH |
| E64 | | F66164W20AP | FLAT CABLE | 1 | SN957S APH |
| E65 | | F82985W00AP | BUTTON | 1 | SN957S APH |
| E66 | | F80724M60SCP | DOOR OPENING BUTTON (U) | 1 | SN957S APH |
| E67 | | F82565W00AP | DOOR OPENING LEVER | 1 | SN957S APH |
| E68 | | F80375K00AP | COOK BUTTON SPRING | 1 | |
| E70 | | F90095X00AP | GROUNDING PANEL | 1 | SN957S APH |
| E75 | | F00078P70SAP | NAME PLATE | 1 | SN957S APH |

## 6.3.5. NN-SN947S APH



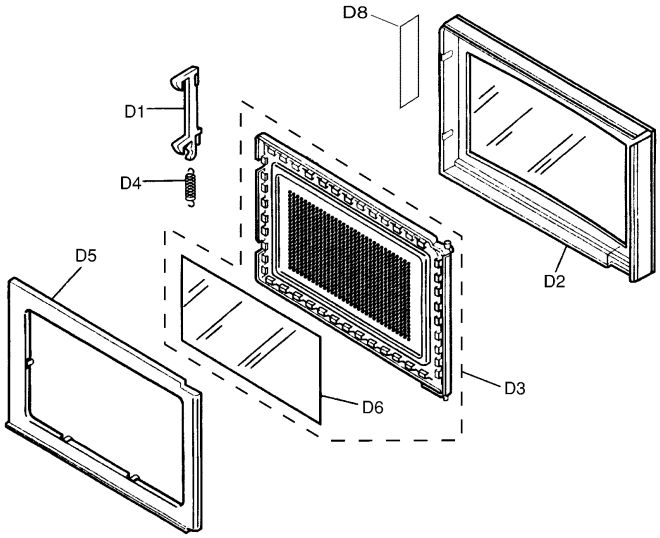

| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| E81 | | F603L8P90AP | D.P.CIRCUIT (AU) | 1 | SN947S APH |
| E83 | | F800L8S20SAP | ESCUTCHEON BASE (U) | 1 | SN947S APH |
| E86 | | F80724M60SCP | DOOR OPENING BUTTON (U) | 1 | SN947S APH |
| E87 | | F82564M60AP | DOOR OPENING LEVER | 1 | SN947S APH |
| E88 | | F80375K00AP | COOK BUTTON SPRING | 1 | |
| E89 | | F630Y8P90BAP | MEMBRANE SWITCH (U) | 1 | SN947S APH |
| E93 | | F81278D60AH | BACK PANEL | 1 | SN947S APH |
| E95 | | F00078S20SAP | NAME PLATE | 1 | SN947S APH |

# 6.4. PACKING AND ACCESSORIES



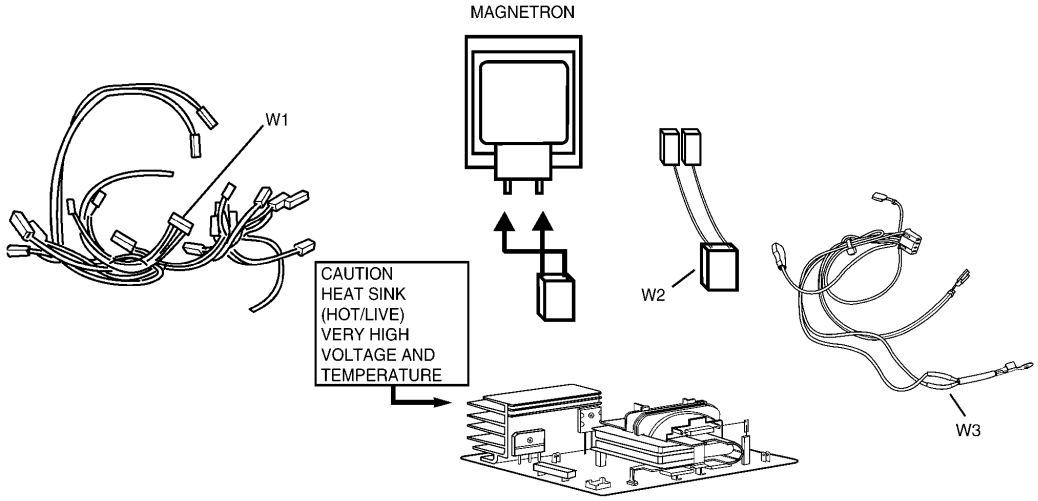

| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| P1 | | F00038N00AP | INSTRUCTION MANUAL | 1 | SD997S APH,SD987S/SB APH |
| P1 | | F00038N00CP | INSTRUCTION MANUAL | 1 | SD997S CPH |
| P1 | | F00038M30AP | INSTRUCTION MANUAL | 1 | SD967S APH |
| P1 | | F00038N50AP | INSTRUCTION MANUAL | 1 | SN977S APH,SN957S APH,SN947S APH |
| P2 | | F01028P00SAP | PACKING CASE,PAPER | 1 | SD997S APH |
| P2 | | F01028P00SCP | PACKING CASE,PAPER | 1 | SD997S CPH |
| P2 | | F01028P10SAP | PACKING CASE,PAPER | 1 | SD987S/SB APH |
| P2 | | F01028P30SAP | PACKING CASE,PAPER | 1 | SD967S APH |
| P2 | | F01028P50SAP | PACKING CASE,PAPER | 1 | SN977S APH |
| P2 | | F01028P70SAP | PACKING CASE,PAPER | 1 | SN957S APH |
| P2 | | F01028S20SAP | PACKING CASE,PAPER | 1 | SN947S APH |
| P3 | | F01044W00AP | UPPER FILLER | 1 | |
| P4 | | F01054W00AP | LOWER FILLER | 1 | |
| P5 | | F01067C50AP | P.E.BAG | 1 | |
| | | | | | |
| P6 | | F01074U00AP | DOOR SHEET | 1 | |
| P7 | | A06014M00AP | COOKING TRAY | 1 | |
| P8 | | F01084M00AP | TRAY PACKING | 1 | |
| P9 | | F01924U00AP | SHEET | 1 | EXCEPT SN977S APH |
| P10 | | F00065G40AP | CAUTION LABEL | 1 | APH |
| | | | | | |
| P11 | | F04458N00SCP | OVERLAY | 1 | SD997S CPH |
| P12 | | F04317D00CP | INSTALLATION INSTRUCTION | 1 | CPH |

## 6.5. DOOR ASSEMBLY




| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| D1 | | F30186P40AG | DOOR KEY A | 1 | |
| D2 | ⚠ | F301A8P00SAP | DOOR A (U) | 1 | SD997S APH/CPH,SD987S/SB APH |
| D2 | ⚠ | F301A8P30SAP | DOOR A (U) | 1 | SD967S APH |
| D2 | ⚠ | F301A8P50SAP | DOOR A (U) | 1 | SN977S APH |
| D2 | ⚠ | F301A8P70SAP | DOOR A (U) | 1 | SN957S APH |
| D2 | ⚠ | F301A8S20SAP | DOOR A (U) | 1 | SN947S APH |
| D3 | ⚠ | F302K4U00AP | DOOR E (U) | 1 | |
| D4 | | F30216P40AG | DOOR KEY SPRING | 1 | SD997S APH/CPH,SD987S/SB APH |
| D4 | | F30215G10XN | DOOR KEY SPRING | 1 | SD967S APH,SN977S APH,SN957S APH,SN947S APH |
| D5 | ⚠ | F30854U00AP | DOOR C | 1 | |
| | | | | | |
| D6 | ⚠ | F31454U00AP | DOOR SCREEN A | 1 | |
| D8 | | F02459660AP | DHHS LABEL | 1 | APH |
| D8 | | F04114180CP | HC LABEL | 1 | CPH |

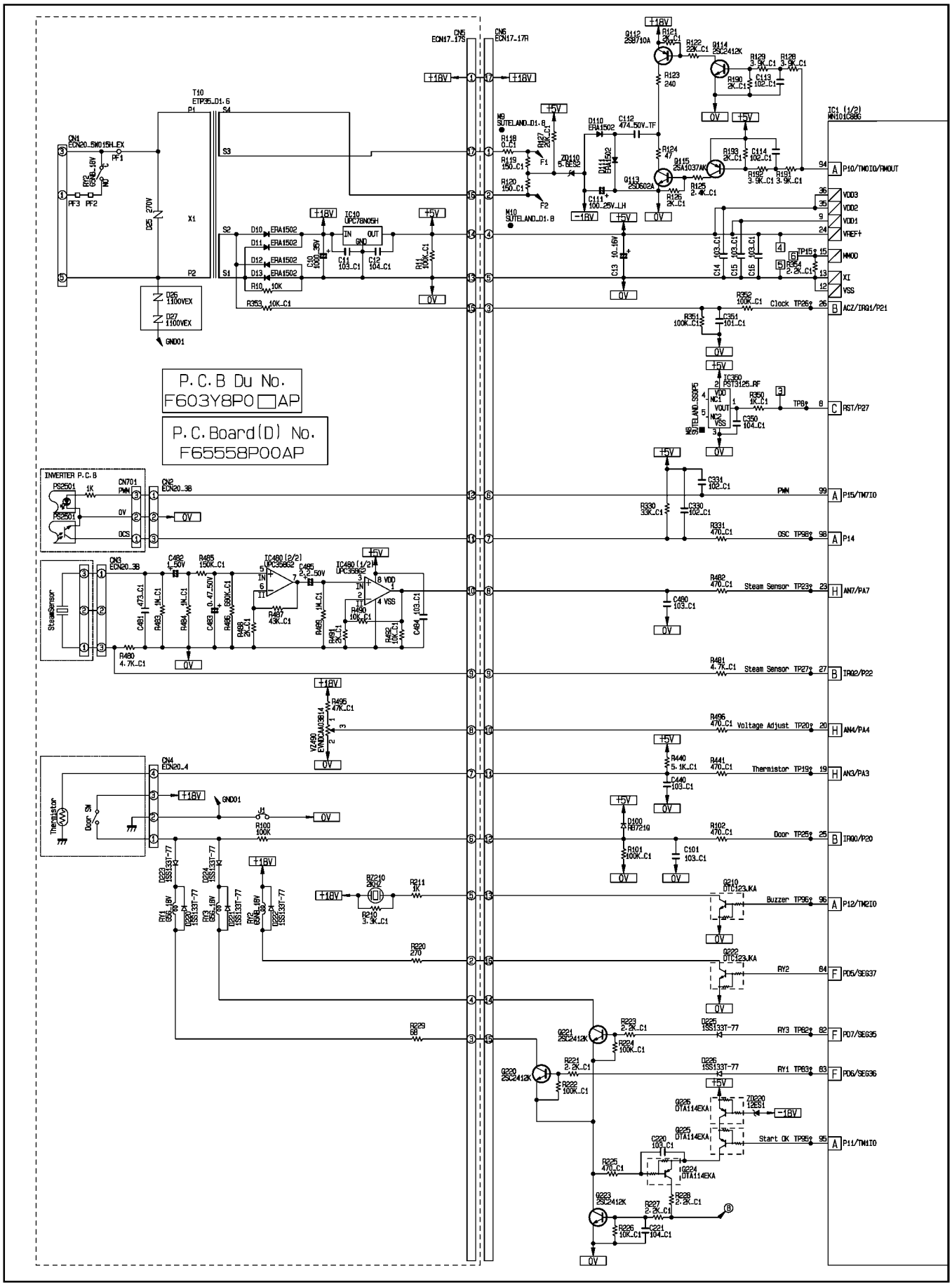
## 6.6. WIRING MATERIALS

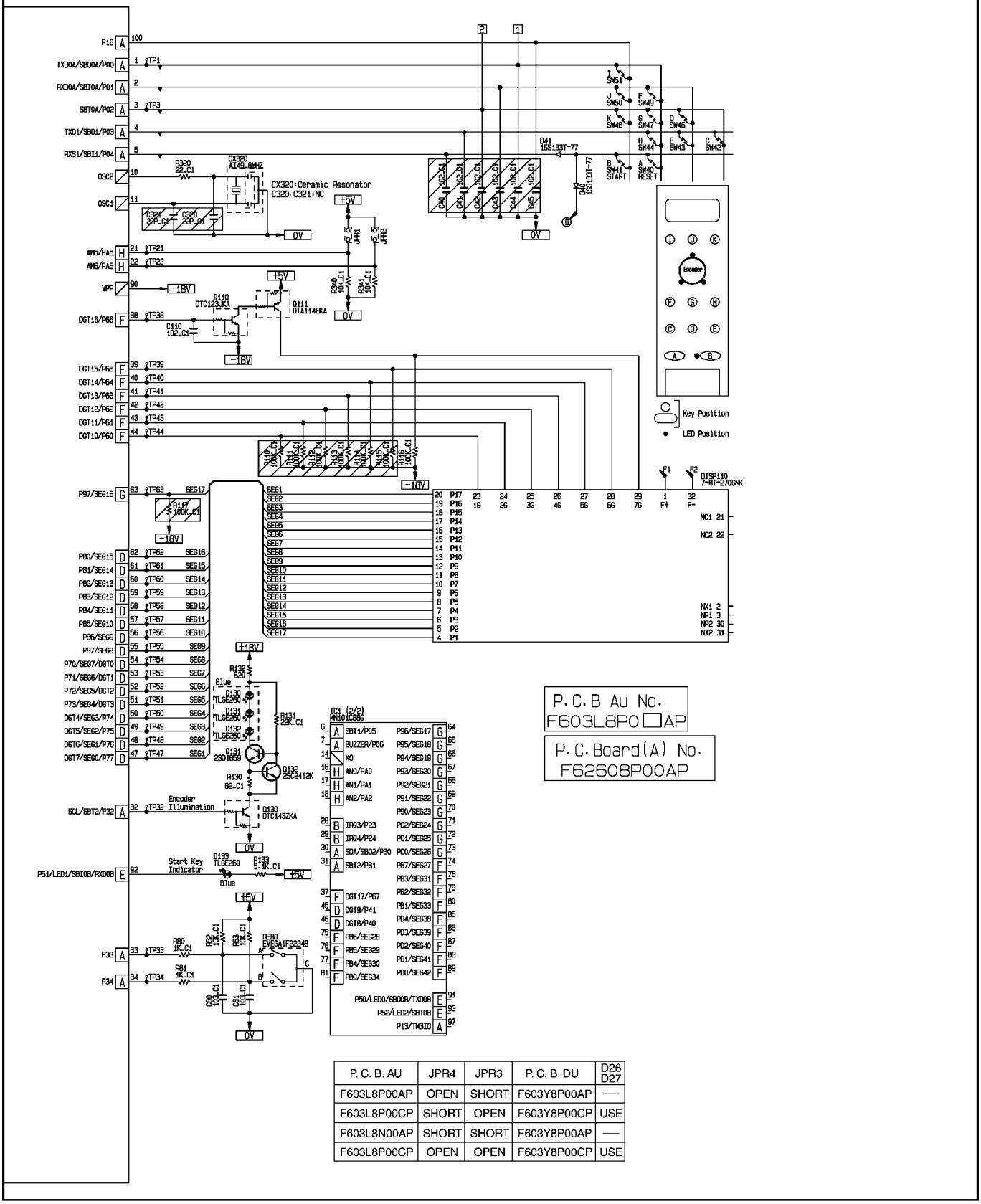



| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| W1 | | F030A7B70AP | LEAD WIRE HARNESS | 1 | APH |
| W1 | | F030A7B60CP | LEAD WIRE HARNESS | 1 | CPH |
| W2 | | F030E6G30AP | H.V.LEAD WIRE | 1 | APH |
| W2 | | F030E6G30CP | H.V.LEAD WIRE | 1 | CPH |
| W3 | | F03537B70AP | LEAD WIRE HARNESS (U) | 1 | (INCLUDING THERMISTOR) |

# 7 DIGITAL PROGRAMMER CIRCUIT

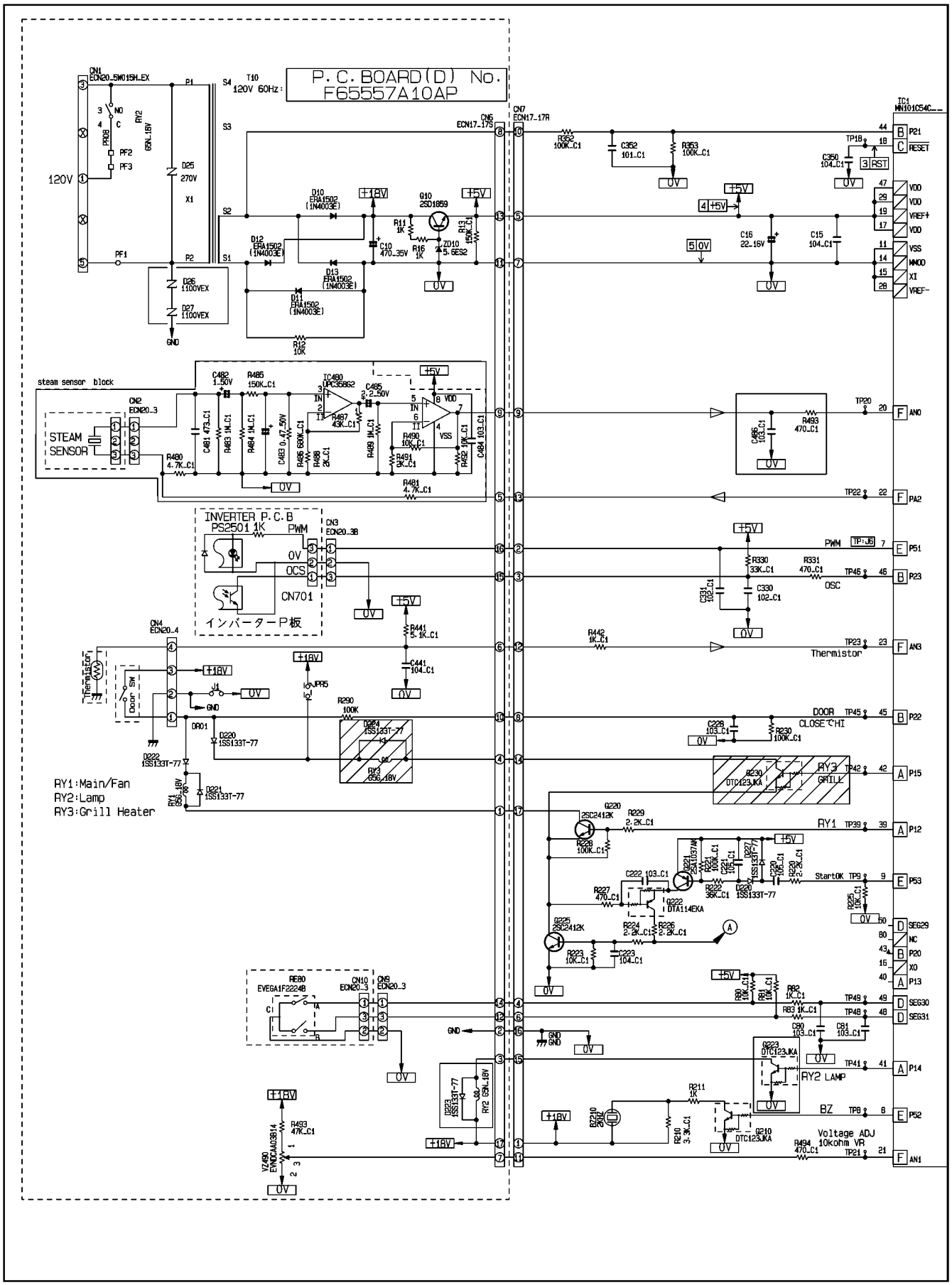
## 7.1. NN-SD997S APH/CPH, SD987S/SB APH

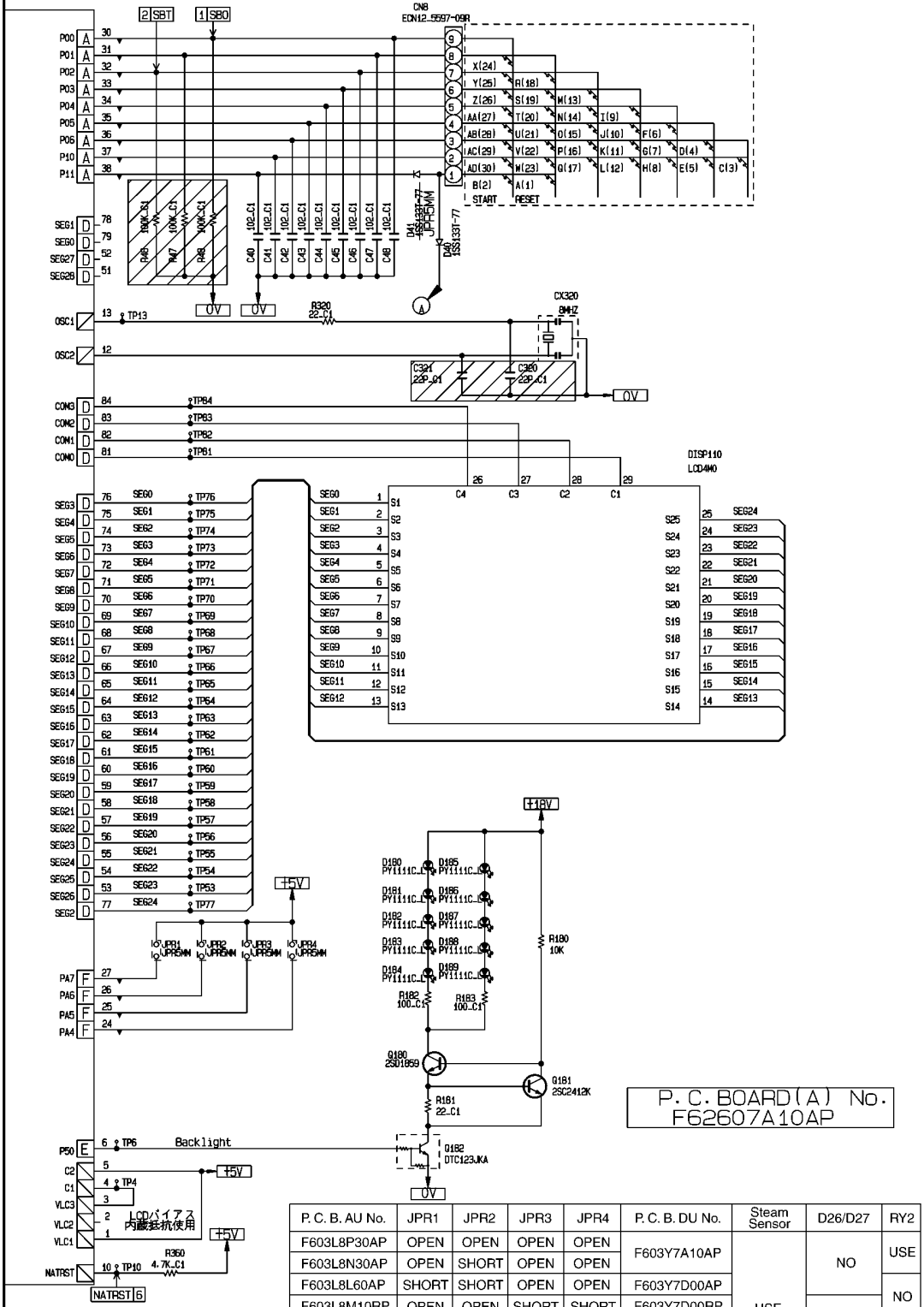





| P. C. B. AU | JPR4 | JPR3 | P. C. B. DU | D26 D27 |
|---|---|---|---|---|
| F603L8P00AP | OPEN | SHORT | F603Y8P00AP | — |
| F603L8P00CP | SHORT | OPEN | F603Y8P00CP | USE |
| F603L8N00AP | SHORT | SHORT | F603Y8P00AP | — |
| F603L8P00CP | OPEN | OPEN | F603Y8P00CP | USE |

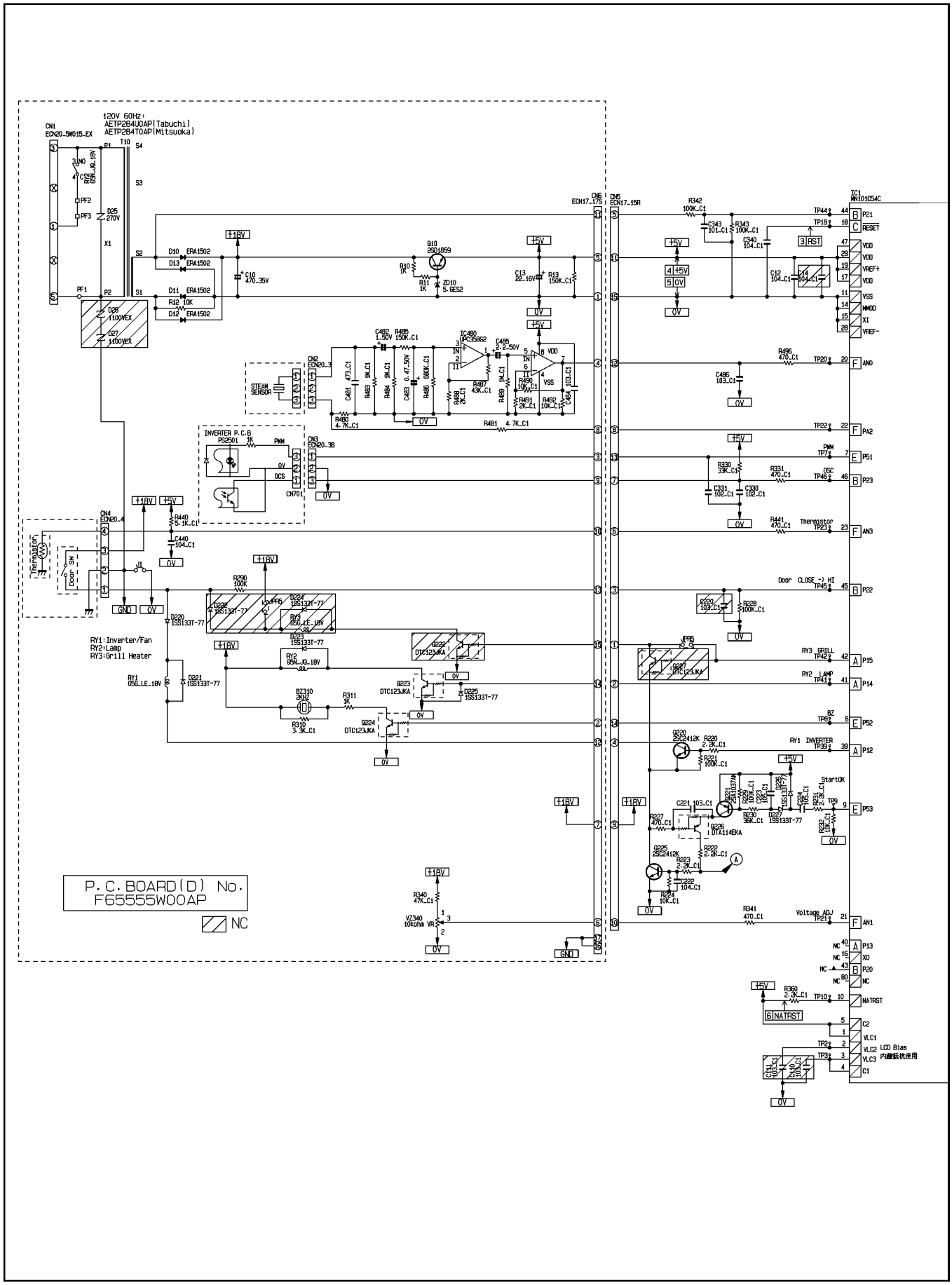
# 7.2. NN-SD967S APH

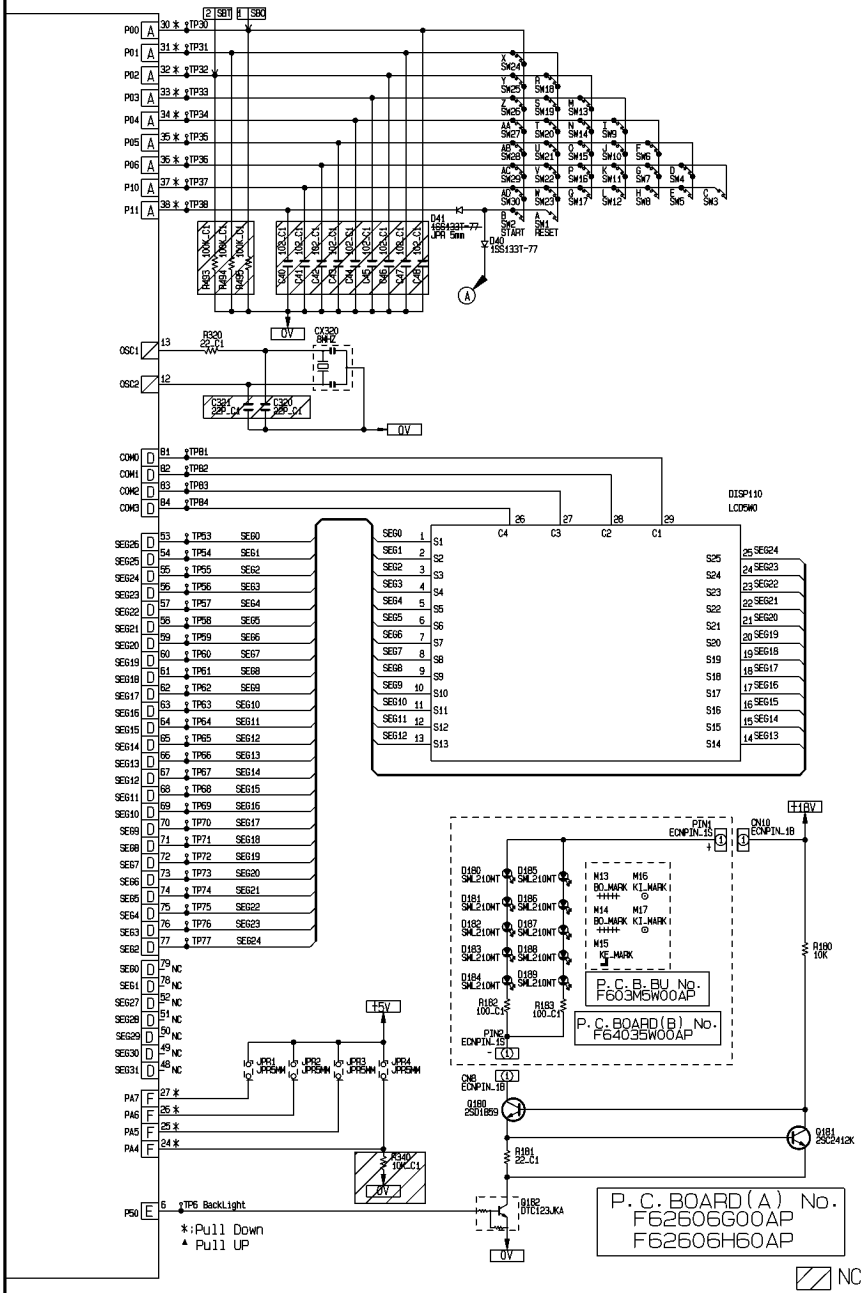





| P. C. B. AU No. | JPR1 | JPR2 | JPR3 | JPR4 | P. C. B. DU No. | Steam Sensor | D26/D27 | RY2 |
|---|---|---|---|---|---|---|---|---|
| F603L8P30AP | OPEN | OPEN | OPEN | OPEN | F603Y7A10AP | USE | NO | USE |
| F603L8N30AP | OPEN | SHORT | OPEN | OPEN | | | | |
| F603L8L60AP | SHORT | SHORT | OPEN | OPEN | F603Y7D00AP | | | NO |
| F603L8M10RP | OPEN | OPEN | SHORT | SHORT | F603Y7D00RP | | USE | |
| F603L8P80RP | SHORT | OPEN | OPEN | OPEN | F603Y7A10CP | | | USE |
| F603L8N90RP | OPEN | OPEN | OPEN | SHORT | | | | |
| F603L8N30CP | OPEN | OPEN | SHORT | OPEN | | | | |
| F603L8M10CP | OPEN | SHORT | SHORT | OPEN | F603Y7D00CP | | | |

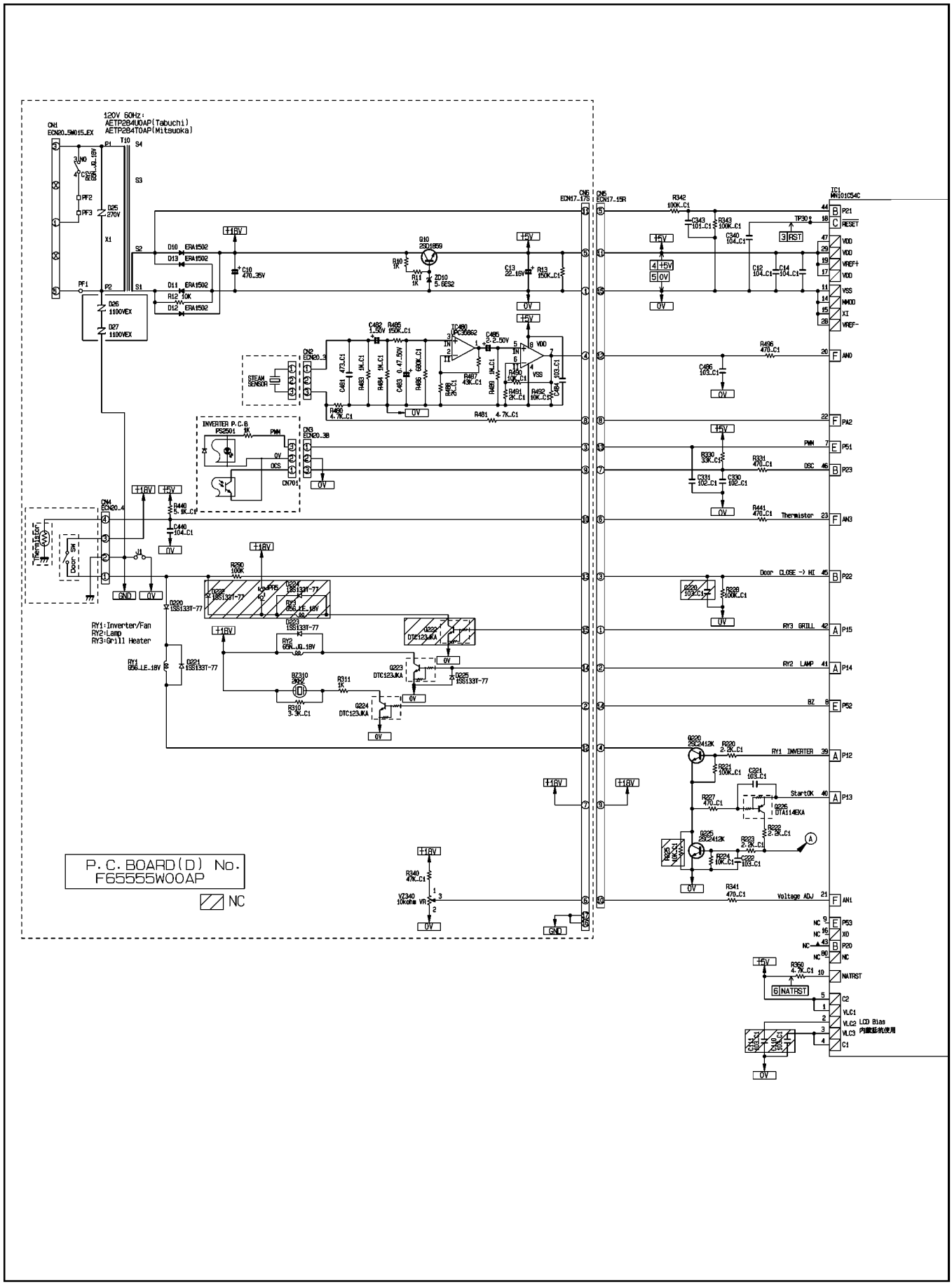
# 7.3. NN-SN977S APH

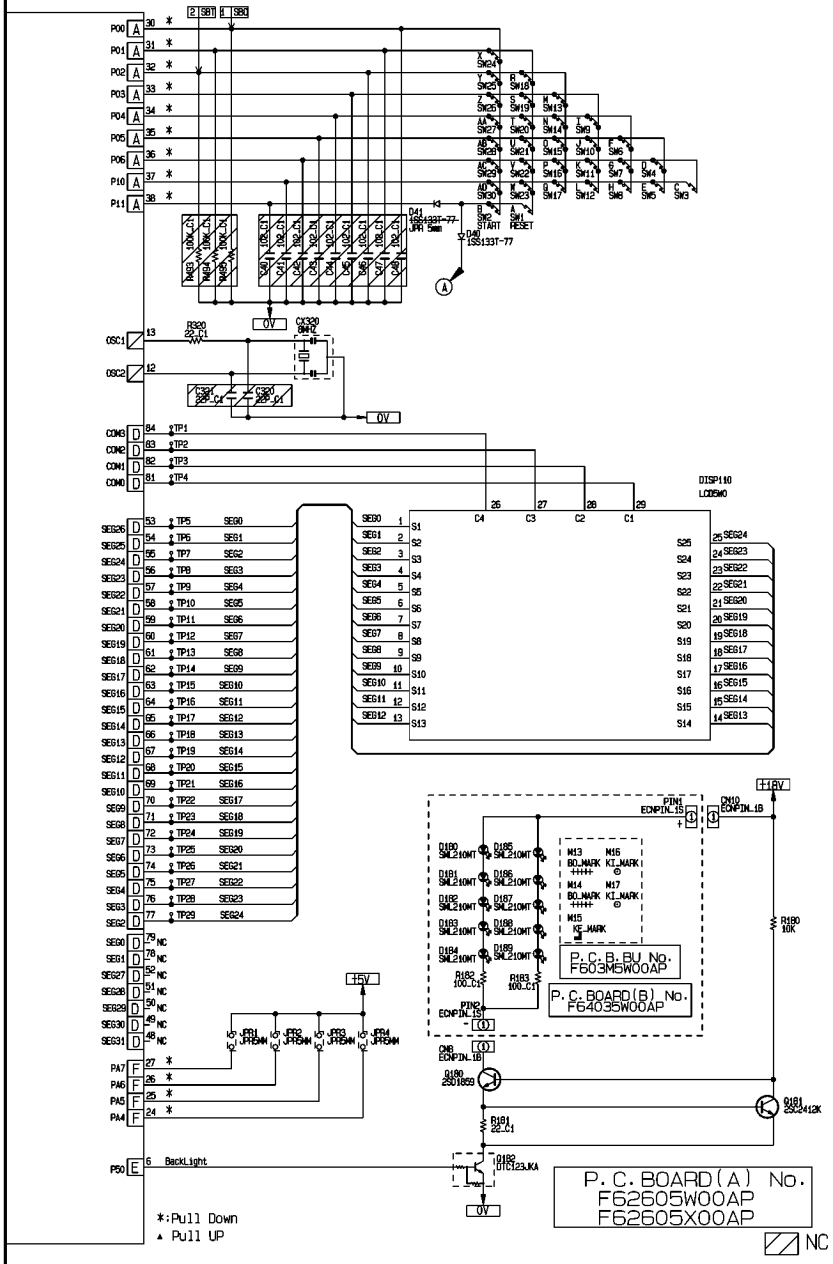





| P. C. B. AU No. | JPR4 | JPR3 | JPR2 | JPR1 | Steam Sensor | P. C. Board (A). No. | P. C. B. DU No. | D26 D27 | P. C. Board (D). No. |
|---|---|---|---|---|---|---|---|---|---|
| F603L8N50AP | SHORT | OPEN | OPEN | OPEN | USE | F62606H60AP | F603Y5W0_AP | NO | F65555W00AP |
| F603L8P50AP | OPEN | OPEN | OPEN | OPEN | USE | F62606G00AP | | | |

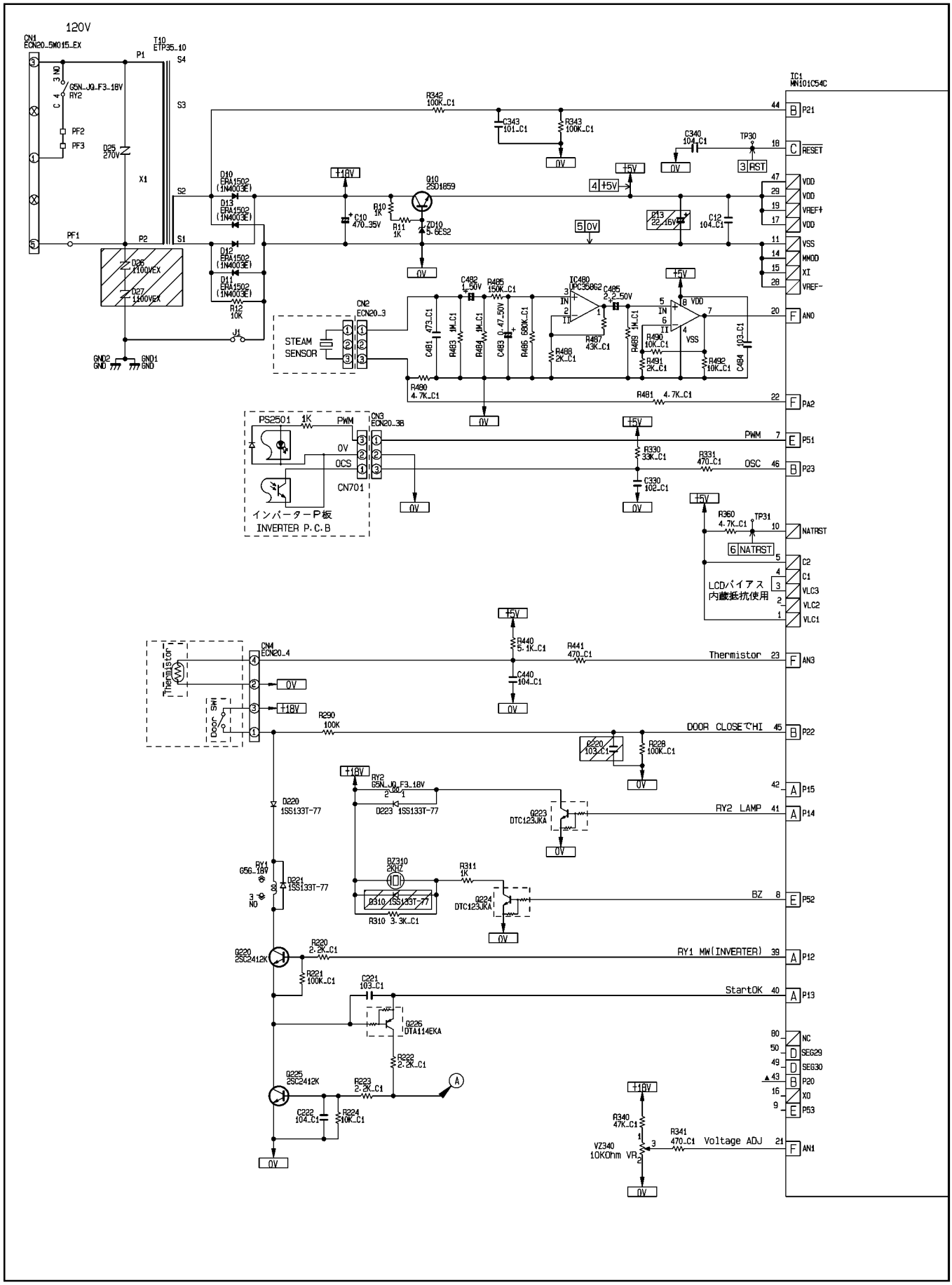
# 7.4. NN-SN957S APH

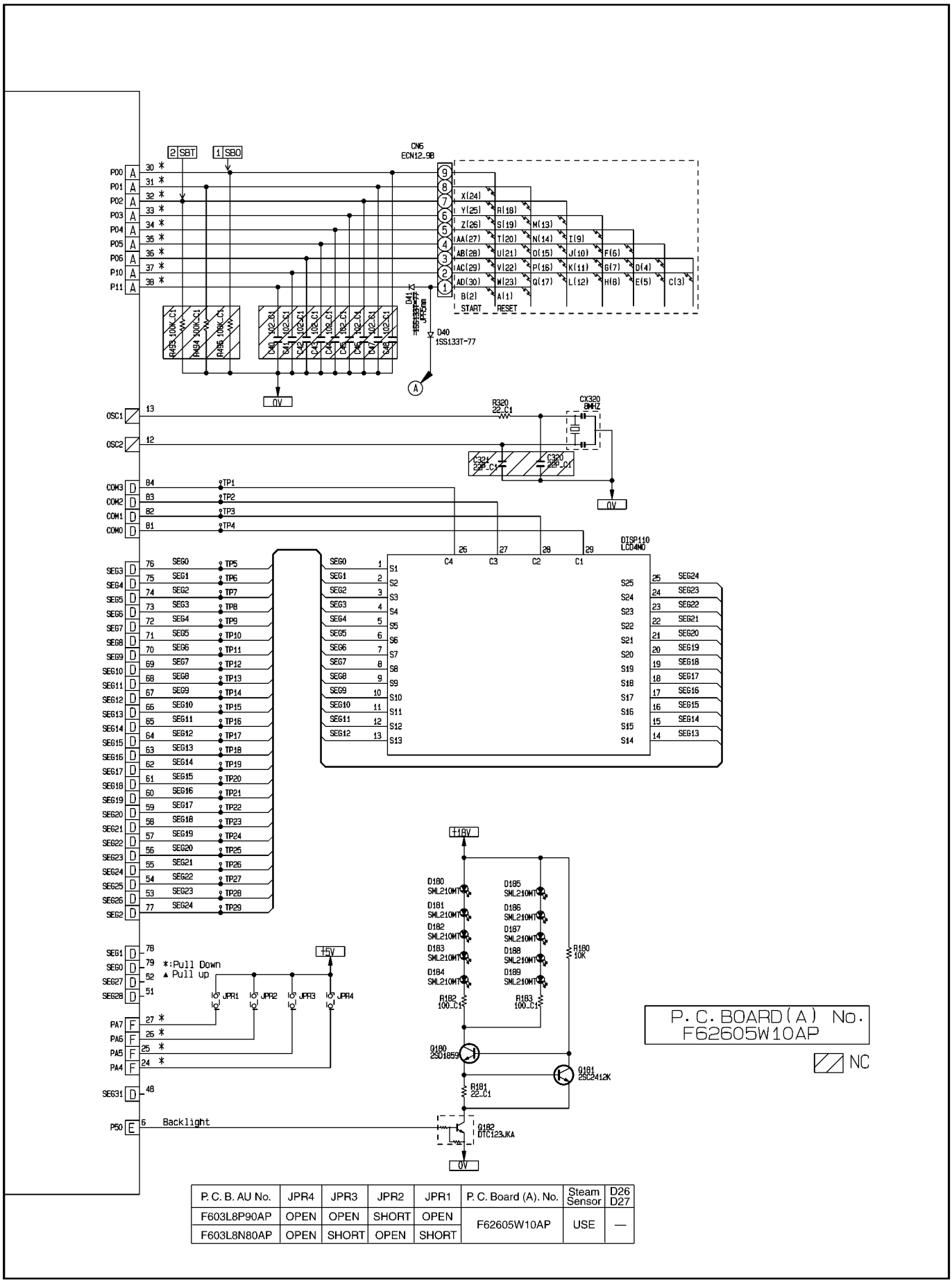





| P. C. B. AU No. | JPR4 | JPR3 | JPR2 | JPR1 | Steam Sensor | P. C. Board (A). No. | P. C. B. DU No. | D26 D27 |
|---|---|---|---|---|---|---|---|---|
| F603L8N70CP | SHORT | OPEN | SHORT | OPEN | USE | F62605X00AP | F603Y5W0_CP | USE |
| F603L8N70AP | SHORT | OPEN | OPEN | OPEN | USE | F62605X00AP | F603Y5W0_AP | NO |
| F603L8P70AP | OPEN | OPEN | OPEN | OPEN | USE | F62605W00AP | F603Y5W0_AP | NO |

# 7.5. NN-SN947S APH






P. C. BOARD (A) No.
F62605W10AP

NC

| P. C. B. AU No. | JPR4 | JPR3 | JPR2 | JPR1 | P. C. Board (A). No. | Steam Sensor | D26 D27 |
|---|---|---|---|---|---|---|---|
| F603L8P90AP | OPEN | OPEN | SHORT | OPEN | F62605W10AP | USE | — |
| F603L8N80AP | OPEN | SHORT | OPEN | SHORT | | | |

# 7.6. PARTS LIST

## 7.6.1. NN-SD997S APH/CPH,SD987S/SB APH

| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| BZ210 | | L0DDEA000014 | BUZZER | 1 | 2.0KHz |
| C13 | | AECETS1C100B | AL CHEM CAPACITOR | 1 | 10µF/16V |
| C111 | | ECEA1EKS101I | AL CHEM CAPACITOR | 1 | 100µF/25V |
| C10 | | AECETK1V102B | AL CHEM CAPACITOR | 1 | 1000µF/35V |
| C482 | | AECETS1H010B | AL CHEM CAPACITOR | 1 | 1µF/50V |
| C483 | | AECETS1HR47B | AL CHEM CAPACITOR | 1 | 0.47µF/50V |
| C485 | | AECETS1H2R2B | AL CHEM CAPACITOR | 1 | 2.2µF/16V |
| CX320 | | EFOEC8004A4 | CERAMIC RESONATOR | 1 | 8.0MHz |
| DISP | | A2BB00000150 | VACUUM FLUORESCENCE DISPLAY | 1 | |
| DISP HOLDER | | F66176Z00AP | LCD HOLDER | 1 | |
| | | F67528P00AP | DIFFUSION SHEET | 1 | |
| D40,D225,D220,D222,D223 | | MA2C19600E | DIODE | 5 | |
| D10-D13,D110,D111 | | B0EAKT000025 | DIODE | 6 | |
| D100 | | MA2C700A0F | DIODE | 1 | |
| D130-D133 | | AE3294UBCA7 | LED | 4 | |
| IC1 | | MN101C88DAG | L.S.I. | 1 | |
| IC10 | | C0CAADG00060 | IC | 1 | |
| IC350 | | C0EBH0000264 | IC | 1 | |
| IC480 | | C0ABBA000230 | IC | 1 | |
| Q131 | | B1BAAJ000003 | TRANSISTOR | 1 | |
| D25 | | D4EAY271A036 | ZENER RESISTOR | 1 | 270V |
| D26,D27 | | D4EAY112A036 | ZENER RESISTOR | 2 | 1100V |
| RY1 | | AEBGJQC25F18 | POWER RELAY | 1 | |
| RY2 | | K6B1AZA00011 | POWER RELAY | 1 | |
| T10 | | G4C3AAD00006 | LOW VOLTAGE TRANSFORMER | 1 | 120V |
| VZ490 | | D3BB6103A006 | VARISTOR | 1 | |
| RE80 | | EVEJ1HF2224B | REVOLVING ENCODER | 1 | |
| SW40-SW44,SW46-SW51 | | EVQ11L05R | SWITCH | 11 | |
| ZD110 | | B0BA3R500006 | ZENER DIODE | 1 | |
| ZD220 | | B0BA01100004 | ZENER DIODE | 1 | |

## 7.6.2. NN-SD967S APH

| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| BZ210 | | L0DDEA000014 | BUZZER | 1 | 2.0KHz |
| C10 | | AECETK1V471B | AL CHEM CAPACITOR | 1 | 470µF/35V |
| C16 | | AECETS1C220B | AL CHEM CAPACITOR | 1 | 22µF/16V |
| C482 | | AECETS1H010B | AL CHEM CAPACITOR | 1 | 1µF/50V |
| C483 | | AECETS1HR47B | AL CHEM CAPACITOR | 1 | 0.47µF/50V |
| C485 | | AECETS1H2R2B | AL CHEM CAPACITOR | 1 | 2.2µF/16V |
| CX320 | | EFOEC8004A4 | CERAMIC RESONATOR | 1 | 8.0MHz |
| DISP110 | | L5AAAFD00019 | LCD | 1 | |
| DISP HOLDER | | F66175E40XN | LCD HOLDER | 1 | |
| | | F67525E40XN | DIFFUSION SHEET | 1 | |
| D40,D220-D223,D226,D227 | | MA2C19600E | DIODE | 7 | |
| IC1 | | MN101C54CHX | L.S.I. | 1 | |
| IC480 | | C0ABBA000230 | IC | 1 | |
| Q10,Q180 | | B1BAAJ000003 | TRANSISTOR | 2 | |
| D25 | | D4EAY271A036 | ZENER RESISTOR | 1 | 270V |
| RY1 | | AEBGJQC25F18 | POWER RELAY | 1 | |
| RY2 | | K6B1AZA00011 | POWER RELAY | 1 | |
| T10 | | G4C2AAD00006 | LOW VOLTAGE TRANSFORMER | 1 | 120V |
| VZ1 | | D3CA6103A017 | VARISTOR | 1 | |
| RE80 | | EVEJ1HF2224B | REVOLVING ENCODER | 1 | |
| ZD10 | | B0BA5R600016 | ZENER DIODE | 1 | |

## 7.6.3. NN-SN977S APH, SN957S APH

| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| BZ310 | | L0DDEA000014 | BUZZER | 1 | 2.0KHz |
| C10 | | AECETK1V471B | AL CHEM CAPACITOR | 1 | 470µF/35V |
| C13 | | AECETS1C220B | AL CHEM CAPACITOR | 1 | 22µF/16V |
| C482 | | AECETS1H010B | AL CHEM CAPACITOR | 1 | 1µF/50V |
| C483 | | AECETS1HR47B | AL CHEM CAPACITOR | 1 | 0.47µF/50V |
| C485 | | AECETS1H2R2B | AL CHEM CAPACITOR | 1 | 2.2µF/16V |
| CX320 | | EFOEC8004A4 | CERAMIC RESONATOR | 1 | 8.0MHz |
| DISP110 | | L5AAAFD00022 | LCD | 1 | |
| DISP HOLDER | | F66175W00AP | LCD HOLDER | 1 | |
| | | F67525E40XN | DIFFUSION SHEET | 1 | |
| D40,D226,D227 | | MA2C19600E | DIODE | 3 | |
| D10-D13 | | B0EAKT000025 | DIODE | 4 | |
| IC1 | | MN101C54CHY | L.S.I. | 1 | |
| IC480 | | C0ABBA000230 | IC | 1 | |
| Q10,Q180 | | B1BAAJ000003 | TRANSISTOR | 2 | |
| D25 | | D4EAY271A036 | ZENER RESISTOR | 1 | 270V |
| RY1 | | AEBGJQC25F18 | POWER RELAY | 1 | |
| RY2 | | K6B1AZA00011 | POWER RELAY | 1 | |
| T10 | | G4C2AAD00005 | LOW VOLTAGE TRANSFORMER | 1 | 120V |
| VZ340 | | D3CA6103A017 | VARISTOR | 1 | 10KΩ |
| SW1-SW4,SW6-SW8,SW11-SW30 | | EVQ11L05R | SWITCH | 27 | |
| ZD10 | | B0BA5R600016 | ZENER DIODE | 1 | |

## 7.6.4. NN-SN947S APH

| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| BZ310 | | L0DDEA000014 | BUZZER | 1 | 2.0KHz |
| C10 | | AECETK1V471B | AL CHEM CAPACITOR | 1 | 470µF/35V |
| C482 | | AECETS1H010B | AL CHEM CAPACITOR | 1 | 1µF/50V |
| C483 | | AECETS1HR47B | AL CHEM CAPACITOR | 1 | 0.47µF/50V |
| C485 | | AECETS1H2R2B | AL CHEM CAPACITOR | 1 | 2.2µF/16V |
| CX320 | | EFOEC8004A4 | CERAMIC RESONATOR | 1 | 8.0MHz |
| DISP110 | | L5AAAFD00019 | LCD | 1 | |
| DISP HOLDER | | F66175440XN | LCD HOLDER | 1 | |
| | | F67525E40XN | DIFFUSION SHEET | 1 | |
| D40,D220,D221,D223 | | MA2C19600E | DIODE | 4 | |
| D10-D13 | | B0EAKT000025 | DIODE | 4 | |
| IC1 | | MN101C54CHY | L.S.I. | 1 | |
| IC480 | | C0ABBA000230 | IC | 1 | |
| Q10,Q180 | | B1BAAJ000003 | TRANSISTOR | 2 | |
| D25 | | D4EAY271A036 | ZENER RESISTOR | 1 | 270V |
| RY1 | | AEBGJQC25F18 | POWER RELAY | 1 | |
| RY2 | | K6B1AZA00011 | POWER RELAY | 1 | |
| T10 | | G4C2AAD00005 | LOW VOLTAGE TRANSFORMER | 1 | 120V |
| VZ340 | | D3CA6103A017 | VARISTOR | 1 | 10KΩ |
| ZD10 | | B0BA5R600016 | ZENER DIODE | 1 | |



01/07
S-8P0, S-8P1
S-8P3, S-8P5
S-8P7, S-8S2
Printed in China

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E1

# Service Manual

## Microwave Oven

## NN-T695 NN-T685SF

## NN-T675SF

## NN-T665SF

## NN-T655SF

## NN-T664SFR

## NN-H665

## NN-S655

## NN-H645

## NN-S645

## NN-H635

## NN-S635

## NN-H625 NN-S625

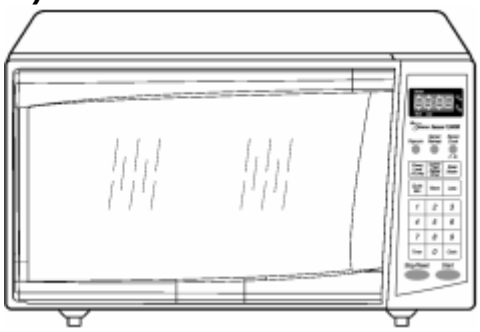
## NN-S615 NN-S605

## NN-S505 NN-S665

## NN-H624BFR NN-H624WFR

## NN-H504BFR NN-H504WFR

**APH(USA)**
**CPH(CANADA)**
**RPH(Mexico/Latin American)**



# Specifications:

| Model: / Specifications: | Specifications for APH: | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | T695SF | T685SF<br>T675SF | T665SF<br>T664SFR | H665BF/WF<br>S655BF/WF<br>S645BF/WF/MF<br>H635BF/WF | H645BF/WF | S635BF/WF | T655SF<br>H625BF/WF<br>H624BFR/WFR | S505BF/WF<br>H504BFR/WFR |
| Power Source: | 120V AC Single Phase, 60Hz | | | | | | | |
| Power Requirement: | 1480W | 1480W | 1480W | 1480W | 1480W | 1480W | 1480W | 1480W |
| Output: | 1300W | 1300W | 1300W | 1300W | 1300W | 1300W | 1250W | 1200W |
| | Specifications for CPH: | | | | | | | |
| Specifications: / Model: | T695SF | T685SF | H665BF/WF | S635BF/WF | S615BF/WF | S605BF/WF | S625BF/WF | S505BF/WF |
| Power Source: | 120V AC Single Phase, 60Hz | | | | | | | |
| Power Requirement: | 1480W | 1480W | 1480W | 1480W | 1480W | 1480W | 1480W | 1480W |
| Output: | 1200W | 1200W | 1200W | 1200W | 1200W | 1200W | 1200W | 1100W |

| Model: / Specifications: | Specifications for RPH: | | |
|---|---|---|---|
| | T695SF<br>T695SM | S655WF<br>T665WM | S645WM |
| Power Source: | 120V AC Single Phase, 60Hz | | |
| Power Requirement: | 1480W | 1480W | 1480W |
| Output: | 1250W | 1250W | 1250W |

| | |
|---|---|
| Microwave Frequency: | *2450MHz |
| Timer: | *99 min. 99 sec. |
| Outside Dimensions: | *20 (518mm)(W) x 16"(404mm)(D) x 11"(301mm)(H) |
| Oven Cavity Dimensions: | *14 (375mm)(W) x 15"(386mm)(D) x 8"(225mm)(H) |
| Weight: | 25 lbs/11.2 kg (for "T" series), 24 lbs/10.7 kg (for "H" & "S" series) |
| PbF | This product with PbF |

Specifications subject to change without notice.

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## ⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

## WARNING

1. This product should be serviced only by trained, qualified personnel.
2. Though this product has been manufactured in compliance with:
   "Federal Performance Standard 21 CFR Subchapter J"(D.H.H.S): U.S.A. models
   or "Radiation Emitting Devices Act"(Health and Welfare Canada): Canadian models
   it is very important all repairs should be made in accordance with procedures described in this manual to avoid being exposed to excessive microwave radiation.
3. Check for radiation leakage before and after every servicing according to the "procedure for measuring radiation leakage."
4. If the unit cannot be repaired on site, advise the customer not to use until unit is repaired.
5. Any serviceman who learns of any accident pertaining to microwave radiation leakage including the oven operating with open door should immediately notify the appropriate address listed below and Center for Devices and Radiological Health, DHHS.

| | | | |
|---|---|---|---|
| IN U.S.A. (PASC) | Panasonic Services Company<br>50 Meadowland Parkway,<br>Secaucus, New Jersey 07094<br>Attention: Technical Service Division.<br>(201)348-7000 | IN PUERTO RICO (PSC) | PSC<br>San Gabriel Industrial Park<br>65th Infantry Ave. Km.9.5<br>Carolina, Puerto Rico 00985<br>(787)750-4300 |
| | | IN CANADA (PCI) | Panasonic Canada Inc.<br>5770 Ambler Drive, Mississauga,<br>Ontario, L4W2T3<br>(905)624-5010 |

6. There are special components used in the microwave oven which are important for safety. These parts are marked with a ⚠ on the replacement parts list. It is essential that these critical parts should be replaced only with the manufacture's specified parts to prevent microwave leakage, shock, fire, or other hazards. Do not modify the orginal design.

# PRECAUTIONS TO BE OBSERVED BEFORE AND DURING SERVICING TO AVOID POSSIBLE EXPOSURE TO EXCESSIVE MICROWAVE ENERGY

(A) Do not operate or allow the oven to be operated with the door open.
(B) Make the following safety checks on all ovens to be serviced before activating the magnetron or other microwave source, and make repairs as necessary:
  (1) Interlock operation
  (2) Proper door closing
  (3) Seal and sealing surfaces (arcing, wear, and other damage)
  (4) Damage to or loosening of hinges and latches.
  (5) Evidence of dropping or abuse
(C) Before turning on microwave power for any service test or inspection within the microwave generating compartments, check the magnetron, waveguide or transmission line, and cavity for proper alignment, integrity and connections.
(D) Any defective or misadjusted components in the interlock, monitor, door seal, and microwave generation and transmission systems shall be repaired, replaced, or adjusted by procedures described in this manual before the oven is released to the owner.
(E) A microwave leakage check to verify compliance with the Federal Performance Standard should be performed on each oven prior to release to the owner.

## CAUTION

**About lead free solder (PbF)**

**Distinction of PbF PCB:** PCBs (manufactured) using lead free solder will have a PbF stamp on the PCB.

**Caution:**
- Pb free solder has a higher melting point than standard solder; Typically the melting point is 30 - 40˚C higher. Please use a high temperature soldering iron. In case of the soldering iron with temperature control, please set it to 370 ± 10˚C.
- Pb free solder will tend to splash when heated too high (about 600˚C).

Panasonic®

**DANGER OF HIGH VOLTAGE AND HIGH TEMPERATURE (HOT/LIVE) OF THE INVERTER POWER SUPPLY (U)**

## INVERTER WARNING

**This Inverter board looks like a regular PCB. However, this PCB drives the magnetron tube with extremely high voltage and high current.** **NEW H.V.**

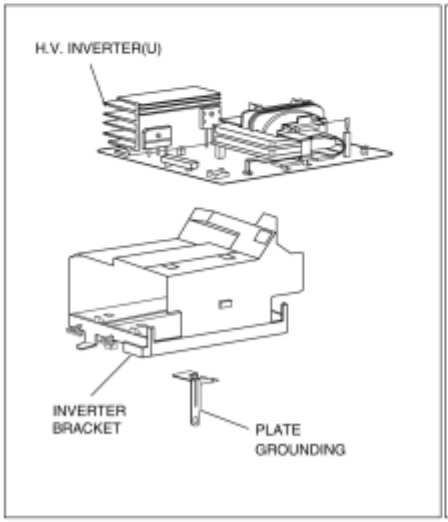
**IT HAS:**

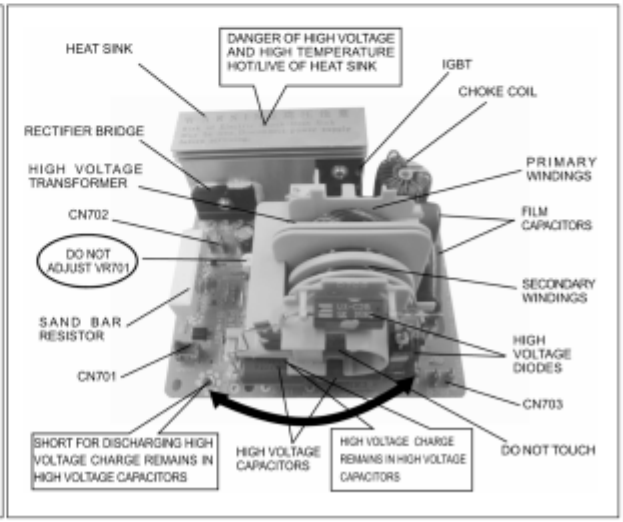
1. **Very high voltage and high current circuits.**
   **It functions the same as the high voltage transformer and high voltage capacitor in ordinary microwave ovens.**
2. **Aluminum heat sink that is energized with very high voltage and high heat energy.**
3. **Very high voltage which may remain in circuitry even when oven is off. High voltage charge may remain in the capacitors on the board.**

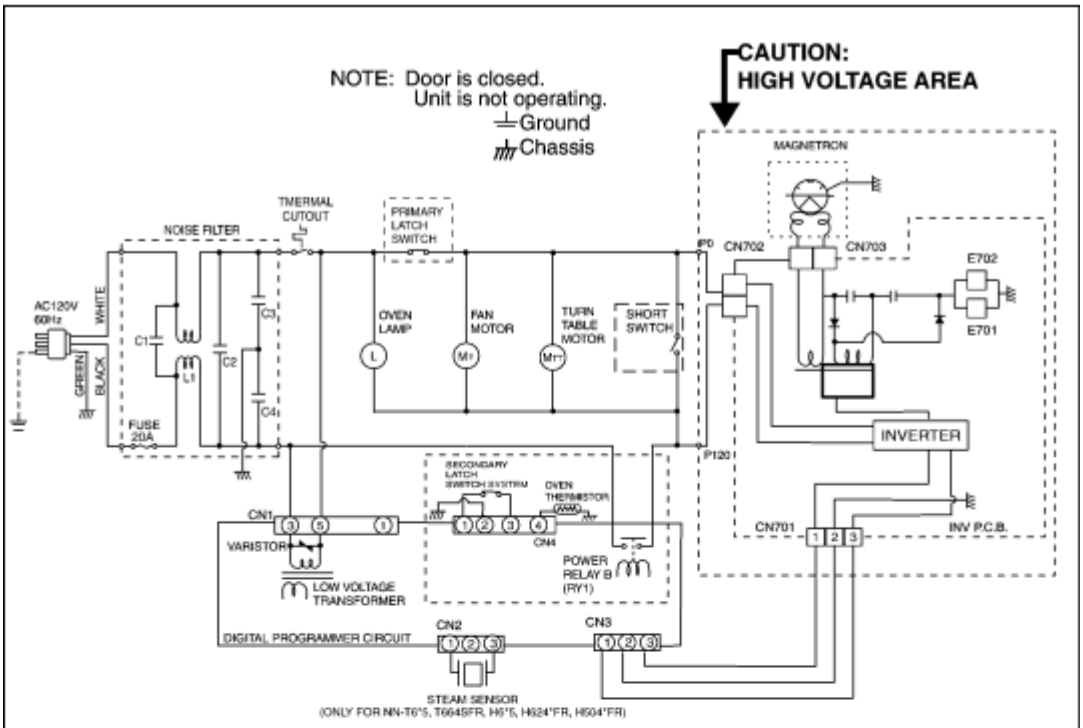
**DO NOT:**

* 1. **Do not touch circuitry because it has very hot (high voltage) circuitry. Even when replacing board, extreme care should be taken to avoid possible electric shock hazards. High voltage charge may remain in circuits.**
* 2. **Do not touch aluminum heat sink because it is energized with very high voltage and is also very hot in high heat energy.**
* 3. **Do not try to adjust or tamper with preset control on the Inverter board because it is very dangerous to adjust without proper test equipment.**
* 4. **Do not test oven while Inverter grounding plate or screws are loose. It is very dangerous to operate H.V. Inverter Circuit (U) with loose mounting screws or if improperly grounded.**
* 5. **For USA only:**
   **Do not try to repair Inverter PCB because it is very dangerous to repair. Replace as a complete High Voltage Inverter Circuit unit and return fully re-packed in original shipping box and shipping materials.**

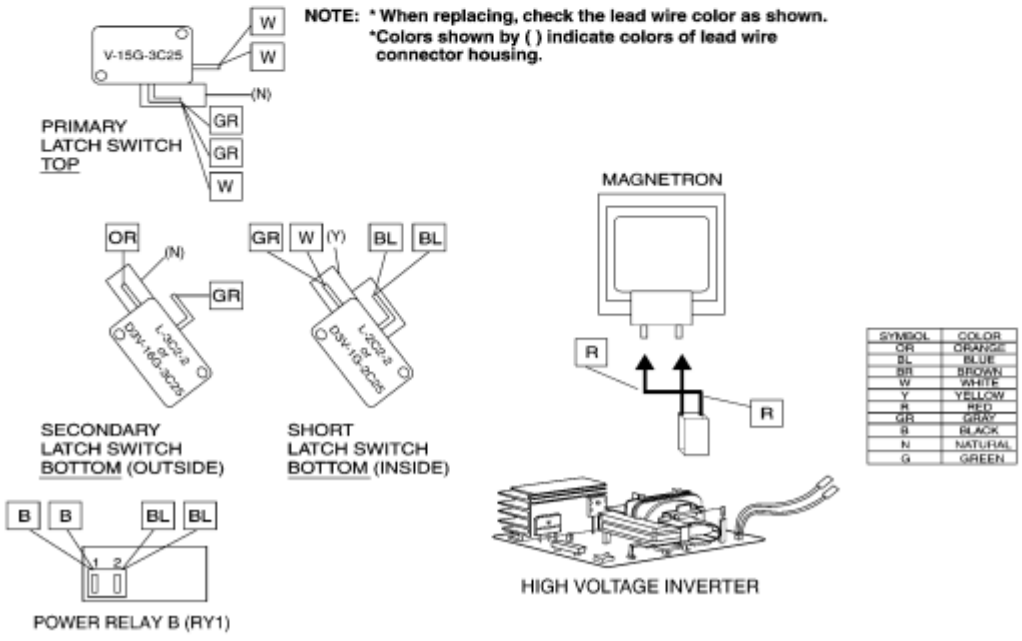
## INVERTER POWER SUPPLY



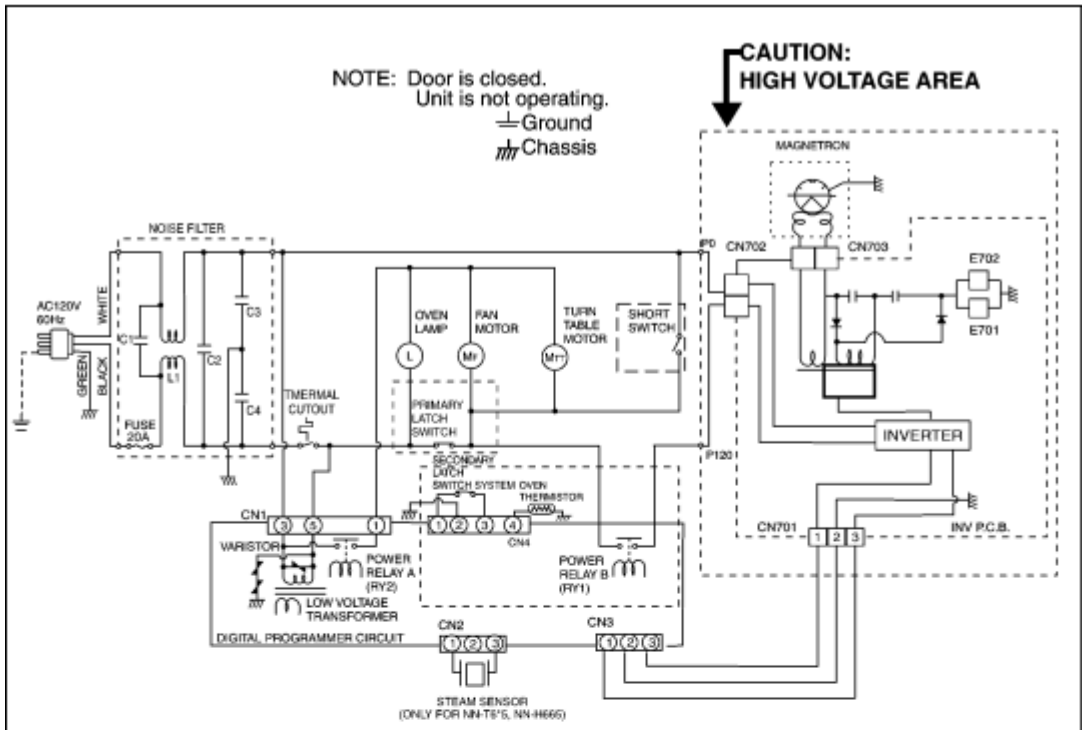





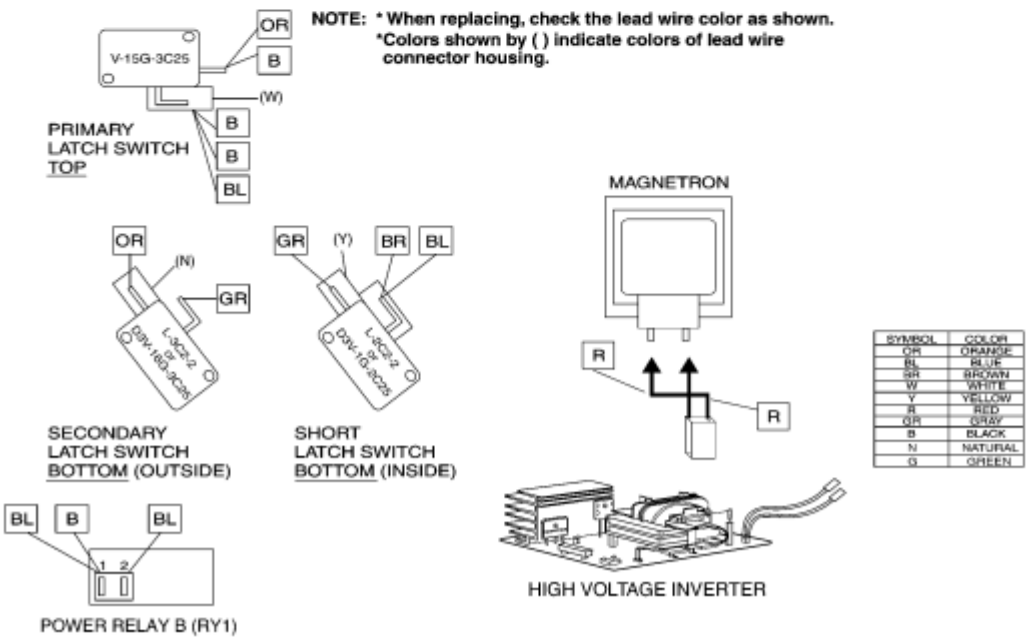

**WIRING DIAGRAM**



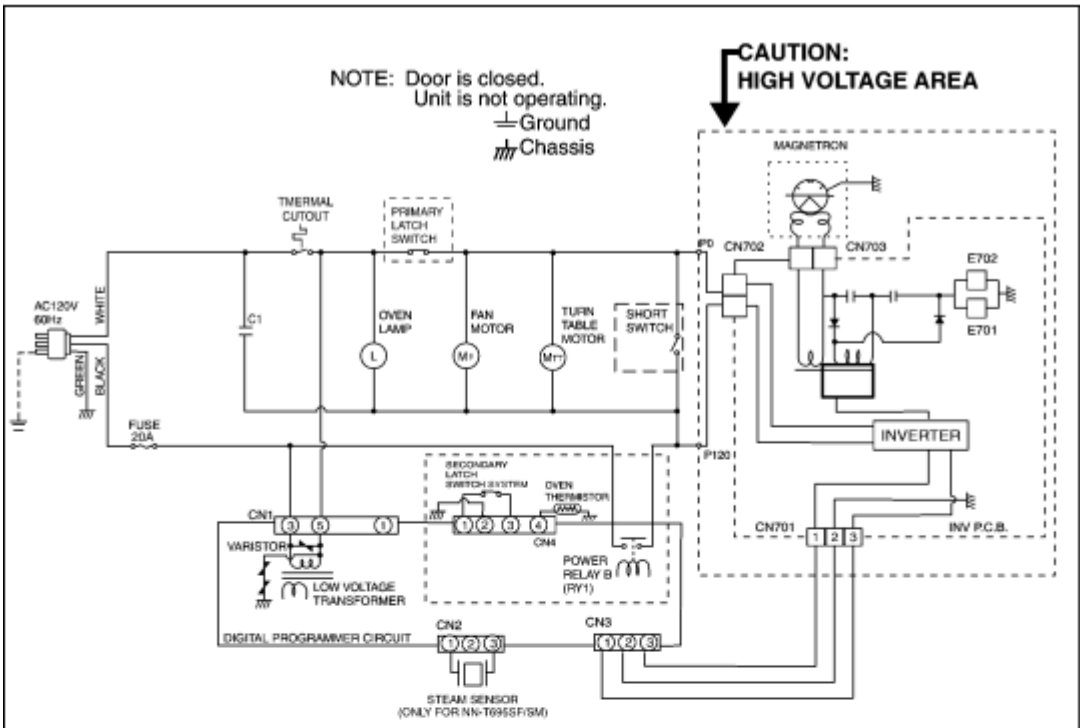

| SYMBOL | COLOR |
|---|---|
| OR | ORANGE |
| BL | BLUE |
| BR | BROWN |
| W | WHITE |
| Y | YELLOW |
| R | RED |
| GR | GRAY |
| B | BLACK |
| N | NATURAL |
| G | GREEN |



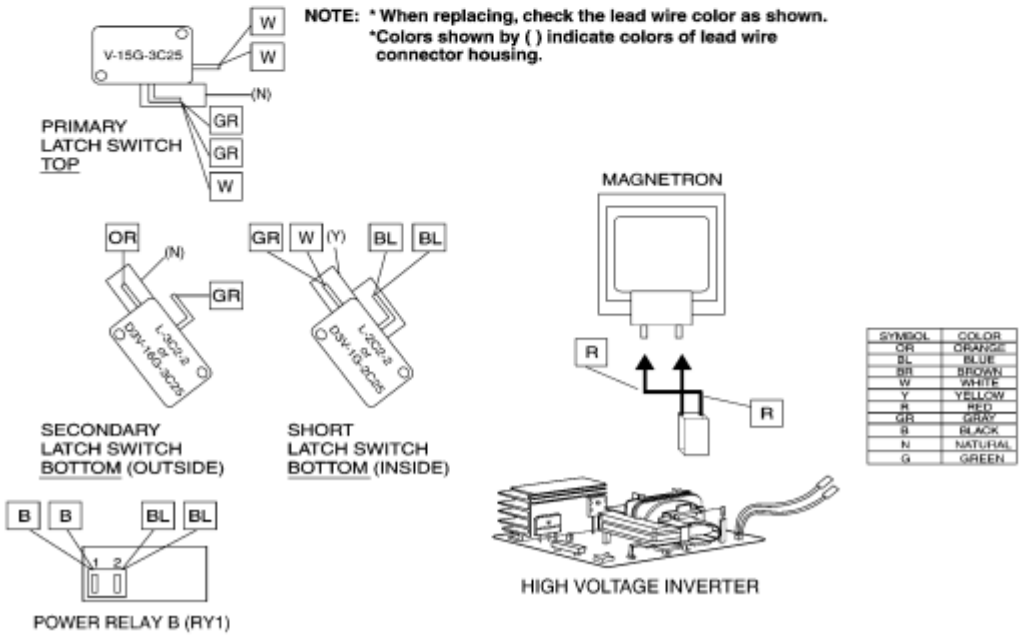

**WIRING DIAGRAM**




| SYMBOL | COLOR |
|---|---|
| OR | ORANGE |
| BL | BLUE |
| BR | BROWN |
| W | WHITE |
| Y | YELLOW |
| R | RED |
| GR | GRAY |
| B | BLACK |
| N | NATURAL |
| G | GREEN |




**WIRING DIAGRAM**



# 2 DESCRIPTION OF OPERATING SEQUENCE

## 2.1 Variable power cooking control

High Voltage Inverter Power Supply (U) controls output power by the signal from Digital Programmer Circuit (DPC). Power relay stays ON for P3 to P10 and For P1 to P2, both inverter drive signal and power relay to control output power.

**NOTE:**

**The ON/OFF time ratio does not correspond with the percentage of microwave power since approximately 2 seconds are required for heating of magnetron filament.**

**Variable Power Cooking**

| POWER | | OUTPUT POWER(%) | ON-OFF TIME OF | |
|---|---|---|---|---|
| | | | ON(SEC) | OFF(SEC) |
| HIGH | P10 | 100% | 22 | 0 |
| | P9 | 90% | 22 | 0 |
| | P8 | 80% | 22 | 0 |
| MEDIUM-HIGH | P7 | 70% | 22 | 0 |
| MEDIUM | P6 | 60% | 22 | 0 |
| | P5 | 50% | 22 | 0 |
| | P4 | 40% | 22 | 0 |
| MEDIUM-LOW | P3 | 30% | 22 | 0 |
| | P2 | 20% | 15 | 7 |
| | P1 | 10% | 8 | 14 |
| DEFROST | P3 | 30% | 22 | 0 |

## 2.2 Inverter power supply circuit NEW H.V.

The Inverter Power Supply circuit powered from the line voltage, 120V 60Hz AC input supplies 4,000V DC to the magnetron tube, and functions in place ofthe H.V. transformer, the H.V. capacitor and H.V. diode.

1. The AC input voltage 120V 60Hz is rectified to DC voltage immediately.
2. DC voltage will be supplied to the switching devices called IGBT. These devices are switched ON-OFF by the 20 to 40 kHz PWM (pulse width modulation) signal from the microcomputer in the DPC.
3. This drives the High voltage transformer to increase voltage up to 2,000V AC.
4. Then the half-wave doubler voltage rectifier circuit, consisting of the H.V. diodes and capacitors, generates the necessary 4,000V DC needed for the magnetron.
5. Output power of the magnetron tube is always monitored by the signal output from the current transformer built into the inverter circuit.
6. This signal is fed back to the microcomputer in the DPC to determine operating conditions and output necessary to control PWM signal to the Inverter Power Supply for control of the output power.

## 2.3 Inverter defrost

When the Auto Control feature is selected and the Start pad is tapped:

1. The digital programer circuit determines the power level and cooking time to complete cooking and indicates the operating state in the display window. Table shows the corresponding cooking times for respective serving by categories.

**Inverter Turbo Defrost**

| SELECTED WEIGHT | COOKING TIME |
|---|---|
| 1.0 LB | 5 min.00 sec. |

2. When cooking time in the display window has elapsed, the oven turns off automatically by a control signal from the

digital programmer circuit.

# 2.4 Sensor cooking (Only for sensor models)

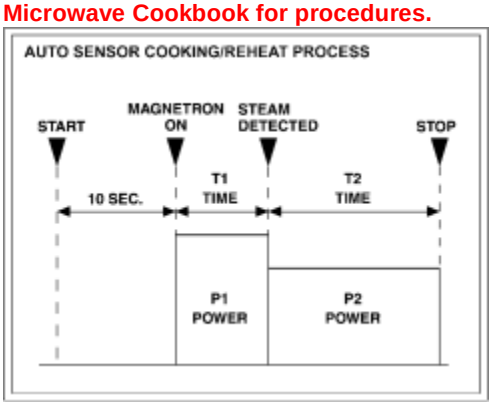
Auto sensor cooking without setting a power level or selecting a time. All that is necessary is to select an Auto Sensor Program before starting to cook.

### Understanding Auto Sensor Cooking

As the food cooks, a certain amount of steam is produced. If the food is covered, this steam builds up and eventually escapes from the container. In Auto Sensor Cooking, a carefully designed instrument, called the steam sensor element, senses this escape of steam. Then, based upon the Auto Sensor Program selected, the unit will automatically determine the correct power level and the proper length of time it will take to cook the food.

**NOTE:**

**Auto Sensor Cooking is successful with the foods and recipes found in the Auto Sensor Cooking Guide. Because of the vast differences in food composition, items not mentioned in the Cooking Guide should be prepared in the microwave oven using power select and time features. Please consult Variable Power Microwave Cookbook for procedures.**




### Explanation of the Auto Sensor Cooking process

1. During the first 10 second period there is no microwave activity. When calculating the T2 time by using the formula below make sure this 10 seconds is subtracted from the T1 time. In other words, T1 time starts at the end of the 10 second period.

2. **T1 time** The total amount of time it takes themicrowave oven to switch to T2 time after the 10second period.
3. **T2 time** When the steam escapes from the cooking container placed in the oven, the steam sensor detects it and the microprocessor calculates the balance of cooking time. This T2 time is then shown in the display and begins counting down.

   #### Balance of cooking time (T2 time)

   The balance of cooking time which is called T2time, can be calculated by the following formula.

   T2 time (in sec.) = T1 time X K factor

**NOTE:**

Remember, the T1 time starts after the 10 second period. The coefficient K is programmed into the microprocessor memory and they are listed in the following tables along with the P1 and P2 powers.

**NOTE:**

When "More" or "Less" pad is selected, the K factor varies resulting in T2 time to be increased or decreased.

### Example of calculating the T2 time

Example 1: If the T1 time is measured to be 2 minutes and 40 seconds after the 10 second period, and the Auto program selected is Oatmeal:
T2 = T1 × K
= 2 min. and 40 sec. × 0.1
= 160sec. × 0.1
= 16 sec.

| Category | P1 Power | P2 Power | K Factor Standard |
|---|---|---|---|
| Oatmeal | HIGH | HIGH | 0.1 |

# 2.5 Sensor reheat (Only for sensor models)

Auto Sensor Reheat is a quick and easy way to reheat refrigerated and room temperature foods.
Simply press the reheat pad. There is no need to select power level and cooking time.

**NOTE:**

The Auto Sensor Reheat process is same as Auto Sensor Cooking process.

| Category | P1 Power | P2 Power | K Factor Standard |
|---|---|---|---|
| Sensor Reheat | HIGH | MEDIUM | 0.3 |

# 2.6 Steam sensor and digital programmer circuit (Only for sensor models)

In order to determine if the steam sensor function of the digital programmer circuit is working, do the following test.

1. Place a water load (150 cc) in the oven.
2. Tap Sensor Reheat pad.
3. Tap Start pad.
4. Steam Sensor detects steam about 1.5 to 4 minutes after the Start pad is tapped.
5. T1 time cooking automatically switches to remaining time for cooking (T2).
6. The remaining cooking time (T2) appears in display window. If the following cooking time appears, Steam Sensor function is normal.

| T1 TIME | T2 TIME (Remainingcooking time) |
|---|---|
| 1 Min. 30 Sec. ~ 4 Min. | 27 Sec. ~ 1Min.12 Sec. |

# 2.7 Thermistor

The thermistor which fixed on magnetron detects magnetron temperature and make power down when the temperature becomes abnormal high. A normal thermistor  s resistance values for temperature ranges between 75-85 degree F is from 37kΩ to 57kΩ.

# 3 CAUTIONS TO BE OBSERVED WHEN TROUBLESHOOTING

Unlike many other appliances, the microwave oven is a high voltage, high current device. It is free from danger in ordinary use, though extreme care should be taken during repair.

**Caution**

Servicemen should remove their watches whenever working close to or replacing the magnetron.

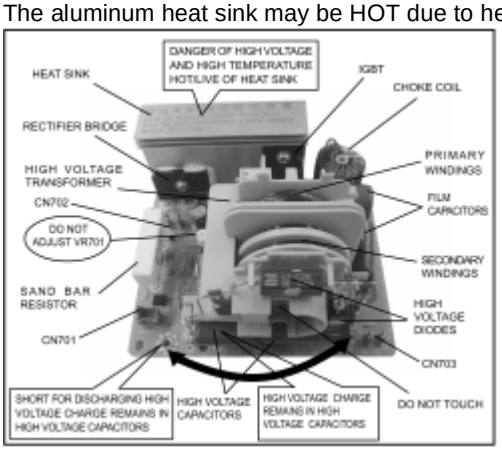
## 3.1 Check the grounding

Do not operate on a two wire extension cord. The microwave oven is designed to be grounded when used. It is imperative, therefore, to ensure the appliance is properly grounded before beginning repair work.

## 3.2 Inverter warnings

**DANGER, HIGH VOLTAGE AND HIGHTEMPERATURE (HOT/LIVE) OF THE INVERTERPOWER SUPPLY (U)**

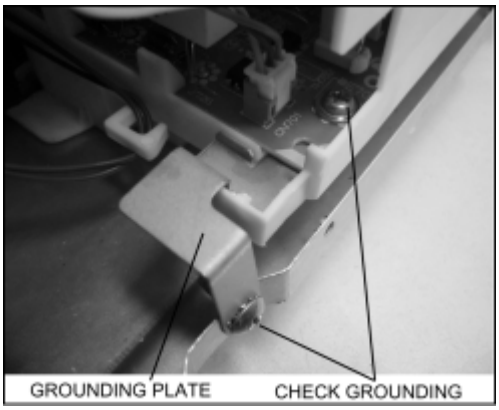
The High Voltage Inverter Power Supply handles very high voltage and current for the magnetron tube. Though it is free from danger in ordinary use, extreme care should be taken during repair.
The aluminum heat sink is also energized with high voltage (HOT), do not touch when the AC input terminals are energized. The power device Collector is directly connected to the aluminum heat sink.
The aluminum heat sink may be HOT due to heat energy, therefore, extreme care should be taken during servicing.




H.V. Inverter warning

**WARNING FOR INVERTER POWER SUPPLY (U) GROUNDING**

Check the High Voltage Inverter Power Supply circuit grounding. The high voltage inverter power supply circuit board must have a proper chassis ground. The inverter grounding bracket must be connected to the chassis. If the inverter board is not grounded it will expose the user to very high voltages and cause extreme DANGER! Be sure that the inverter circuit is properly grounded via the inverter grounding bracket.



Grounding of the inverter circuit board

**WARNING! DISCHARGE THE HIGH VOLATGE CAPACITORS**

For about 30 seconds after the oven is turned off, an electric charge remains in the high voltage capacitors in the Inverter Power Supply circuit board.
When replacing or checking parts, remove the power plug from the outlet and short the inverter output terminal of the magnetron filament terminals to the chassis ground with an insulated handle screwdriver to discharge. Please be sure to touch the chassis ground side first and then short to the output terminals.

Panasonic
MAGNETRON FILAMENT TERMINAL
INSULATED HANDLE SCREWDRIVER
Touch chassis side first then short to the terminal of the magnetron filament terminal.
Discharging the high voltage capacitors

**WARNING**

There is high voltage present with high current capabilities in the circuits of the primary and secondary windings, choke coil and heat sinkof the inverter. It is extremely dangerous to work on or near these circuits with the oven energized. DO NOT measure the voltage in the high voltage circuit including the filament voltage of the magnetron.

**WARNING**

Never touch any circuit wiring with your hand or with an insulated tool during operation.

# 3.3 Part replacement.

When any part or component is to be replaced, always ensure that the power cord is removed from the wall outlet.

# 3.4 When the 20A fuse is blown due to the operation of the short switch:

**WARNING**

When the 20A 120V fuse is blown due to the operation of the interlock monitor switch, replace all of the components (primary latch switch, short switch and power relay B (RY1)).

1. This is mandatory. Refer to “adjustments and measurements” for the location of these switches.
2. When replacing the fuse, confirm that it has the appropriate rating for these models.
3. When replacing faulty switches, be sure the mounting tabs are not bent, broken or deficient in their ability to hold the switches.

# 3.5 Avoid inserting nails, wire etc. through any holes in the unit during operation.

Never insert a wire, nail or any other metal object through the lamp holes on the cavity or any holes or gaps, because such objects may work as an antennaand cause microwave leakage.

# 3.6 Confirm after repair

1. After repair or replacement of parts, make sure that the screws of the oven, etc. are neither loosen or missing. Microwave might leak if screws are not properly tightened.
2. Make sure that all electrical connections are tight before inserting the plug into the wall outlet.
3. Check for microwave energy leakage. (Refer to procedure for measuring microwave energy leakage).

**CAUTION MICROWAVE RADIATION**

USE CAUTION NOT TO BECOME EXPOSED TO RADIATION FROM THE MICROWAVE MAGNETRON OR OTHER PARTS CONDUCTING MICROWAVE ENERGY.

**IMPORTANT NOTICE**

The following components have potentials above 2000V while the appliance is operated.

- Magnetron
- High voltage transformer (Located on inverter (U))
- High voltage diodes (Located on inverter (U))
- High voltage capacitors (Located on inverter (U))

Pay special attention to these areas.

When the appliance is operated with the door hinges or magnetron installed incorrectly, the microwave leakage can exceed more than 5mW/cm2. After repair or exchange, it is very important to check if the magnetron and the door hinges are correctly installed.

# 3.7 Sharp edges

**Caution**

Please use caution when unpacking, installing or moving the unit, as some exposed edges may be sharp to the touch and cause injury if not handled with care.

# 4 DISASSEMBLY AND PARTS REPLACEMENT PROCEDURE

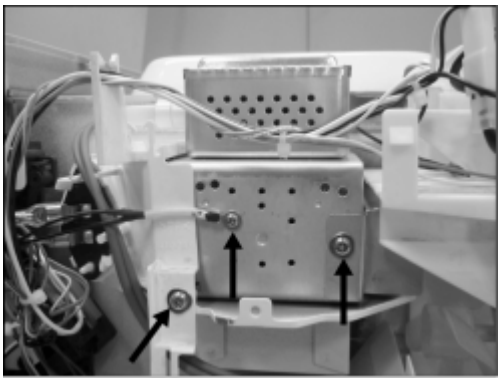
## 4.1 Magnetron

1. Discharge high voltage charge.
2. Remove 1 screw holding air guide A on the oven cavity.
3. Remove 1 screw holding air guide B.
4. Remove 1 screw holding themistor.
5. Disconnect 2 high voltage lead wires from magnetron filament terminals.
6. Remove 4 screws holding the magnetron.

**NOTE:**

**After replacement of the magnetron, tighten mounting screws properly in an x pattern, making sure there is no gap between the waveguide and the magnetron to prevent microwave leakage.**

| CAUTION |
| --- |
| When replacing the magnetron, be sure the antenna gasket is in place. |



## 4.2 Digital programmer circuit (D.P.C)

**NOTE:**

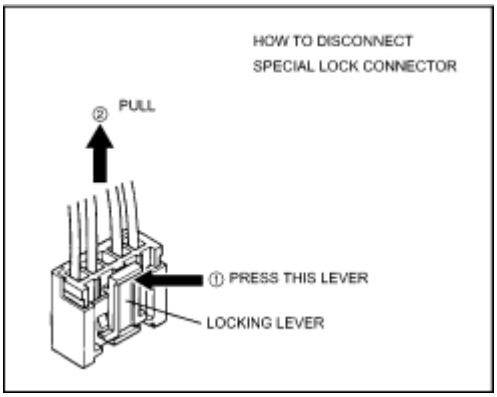
**Before handing the D.P.C ensure that your body is connected to ground to discharge any electric charge.**

1. Disconnect all connectors from D.P.C.
2. Remove 1 grounding screw.
3. Remove 1 screw holding escutcheon base and slide the escutcheon base upward slightly.
4. Remove 1 screw holding D.P.C.
5. Release lock of connector CN6 by pushing both levers to inside pull upward, and remove flat cable of membrane keyboard.
6. Separate D.P.C board from tabs on the escutcheon base and remove D.P.C board.

**NOTE:**

**1. The membrane key board is attached to the escutcheon base with double faced adhesive tape. Therefore, applying hot air such as using a hair dryer is recommended for smoother removal.**

**2. When installing new membrane key board, make sure that the surface of escutcheon base is cleaned sufficiently so that any problems (shorted contacts or uneven surface) can be avoided.**




# 4.3 Low voltage transformer and/or power relays (RY1, RY2)

**NOTE:**

**Be sure to ground any static electric charge built up on your body before handling the D.P.C.**

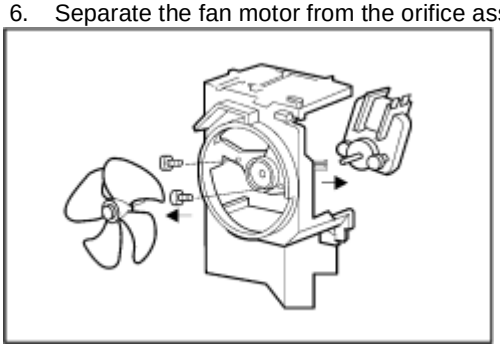
1. Replace D.P.C. board.
   (A) Using solder wick or a desoldering tool and 30W soldering iron carefully remove all solder from the terminal pins of the low voltage transformer and/or power relays.

   **NOTE:**

   **Do not use a soldering iron or desoldering tool of more than 30 watts on D.P.C. contacts.**
   (B) With all the terminal pins cleaned and separated from D.P.C. contacts, remove the defective transformer/power relays, Replace components making sure all terminal pins are inserted completely resolder all terminal contacts carefully.

# 4.4 Fan motor

1. Disconnect 2 lead wires from fan motor terminals.
2. Remove 2 screws at location on oven attaching orifice assembly.
3. Remove orifice assembly from oven assembly.
4. Remove fan blade from the fan motor shaft by pulling it straight out.
5. Remove 2 screws holding fan motor to orifice.
6. Separate the fan motor from the orifice assembly by freeing 2 catch hooks on the orifice assembly.



# 4.5 Door assembly

1. Remove door C from door E by carefully pulling outward, starting from upper right hand corner using a flat blade screwdriver.
2. Separate door E from tabs on door A and remove door A.
3. Open Door E at the opening angle of approximately

## Nie można wyświetlić strony XML

**Nie można przeglądać wejścia XML przy użyciu arkusza stylów CSS.**
**Popraw błąd, a następnie kliknij przycisk Odśwież lub spróbuj ponownie**

**później.**

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**Znaleziono nieprawidłowy znak w zawartości tekstowej. Błąd podczas przetwarzania zasobu 'http://tsn.pstc.panasonic.com/view...**

<emp>10

# 5 COMPONENT TEST PROCEDURE

**CAUTION NEW. H.V.**

1. High voltage is present at the high voltage terminal of the High Voltage Inverter (U) including aluminum heat sink during any cook cycle.
2. It is neither necessary nor advisable to attempt measurement of the high voltage.
3. Before touching any oven components, or wiring, always unplug the oven from its power source and discharge the high voltage capacitors.

## 5.1 Primary latch switch (door switch and power relay B) interlocks.

1. Unplug lead connectors to Power Relay B and verify open circuit of the power relay B 1-2terminals.
2. Unplug lead connectors to Primary Latch Switch and Door Switch.
3. Test the continuity of switches at door opened and closed positions with ohm meter (low scale).
   Normal continuity readings should be as follows.

| | Door Closed | Door Opened |
|---|---|---|
| Primary Latch switch | 0Ω (Close) | ∞ Ω(Open) |
| Door Switch | 0Ω (Close) | ∞ Ω(Open) |
| Power Relay B | ∞ Ω (Close) | ∞ Ω(Open) |

## 5.2 Short switch & monitor

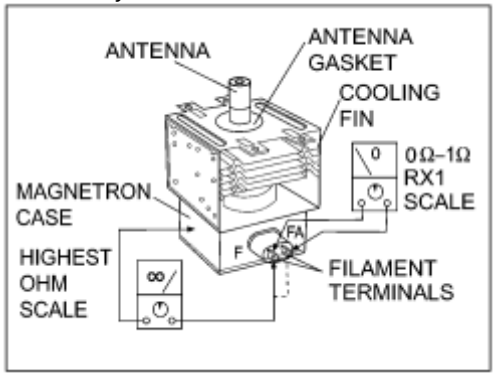
1. Unplug lead wires from Inverter Power Supply (U) primary terminals.
2. Connect test probes of ohm meter to the disconnected leads which were connected to Inverter Power Supply (U).
3. Test the continuity of short switch with door opened and closed positions using lowest scale of the ohm meter.
   Normal continuity readings should be as follows.

| Door Opened | Door Closed |
|---|---|
| 0Ω | ∞ Ω |

## 5.3 Magnetron

Continuity checks can only indicate an open filament or a shorted magnetron. To diagnose for an open filament or shorted magnetron.

1. Isolate magnetron from the circuit by disconnecting the leads.
2. A continuity check across magnetron filament terminals should indicate one ohm or less.
3. A continuity check between each filament terminal and magnetron case should read open.

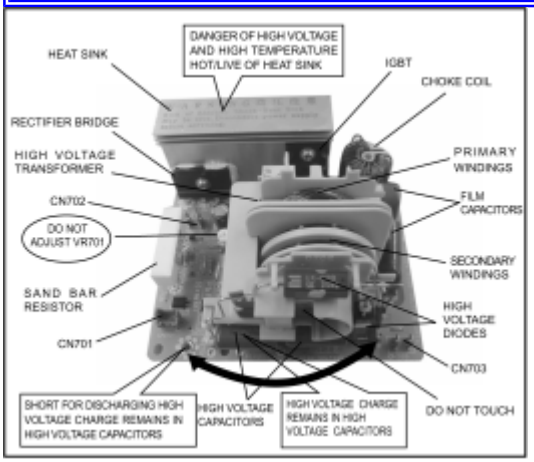


# 5.4 Membrane key board (Membrane switch assembly)

Check continuity between switch terminals, by tapping an appropriate pad on the key board. The contacts assignment of the respective pads on the key board is as shown in digital programmer circuit. (Refer to Mini Manual)

# 5.5 Inverter power supply (U)

**DO NOT try to REPAIR H.V. Inverter power supply (U).Replace complete H.V. Inverter(U) Unit.**




DANGER HIGH VOLTAGE

Test if failure codes of H97 or H98 appear by doing the following procedure. It is recommended to use an AC line input current Ampere meter for testing.

**Test1**

1. Program DPC.
    1. Tap Clock Keypad
    2. Tap Timer Keypad
    3. Tap Start Keypad
    4. Tap Power Level Keypad
2. Place 1 liter of water load into oven cavity.
3. Unplug 2 pin H.V. lead wire connector CN703 from magnetron tube.
4. Program oven at High power for 1 minute and press start.
    1. After approximately 23 seconds, oven stops.
    2. During oven operation, input current is approximately 0.5 to 1A. If both a and b are OK, proceed to test 2.

| | INPUT AMPERE | FAILURE CODE |
|---|---|---|
| Unplug CN703 | 0.5 to 1A | Oven stops in 23 seconds after started. |

**Test2**

Continued from Test 1

1. Unplug 3 pin connector CN701. CN703 remains unplugged.
2. Program oven at High power for 1 minute and press start.
    1. After approximately 3 seconds, oven stops.
    2. During oven operation, input current is approximately 0.4A.

| | INPUT AMPERE | FAILURE CODE |
|---|---|---|
| Unplug CN701 | <0.4A | Oven stops in 3 seconds after started. |

If both a and b check OK, the Inverter Power Supply (U) can be determined to be OK.

# 6 MEASUREMENTS AND ADJUSTMENTS

**WARNING**

- For continued protection against radiation hazard, replace only with identical replacement parts (For touch models Part No. J61424T00AP, Type No. V-15G-3C25 for Primary latch switch; Part No. J61414T00AP, Type No. D3V-16G-3C25 for Secondary latch switch and Part No. J61784T00AP, Type No. D3V-1G-2C25 for short switch.)
- When the 20 Amp. fuse is blown due to the operation of the short switch, you must replace power relay B ( Part No. AEGG5G1A18, Type No. G5G-1A12VDC), Primary latch switch and the short switch. Then follow the installation procedures below.
- Interlock switch replacement In replacing faulty switches, be sure mounting tabs are not bent, broken or otherwise deficient in their ability to hold the switches.
- Refer to schematic diagram to ensure proper connection.

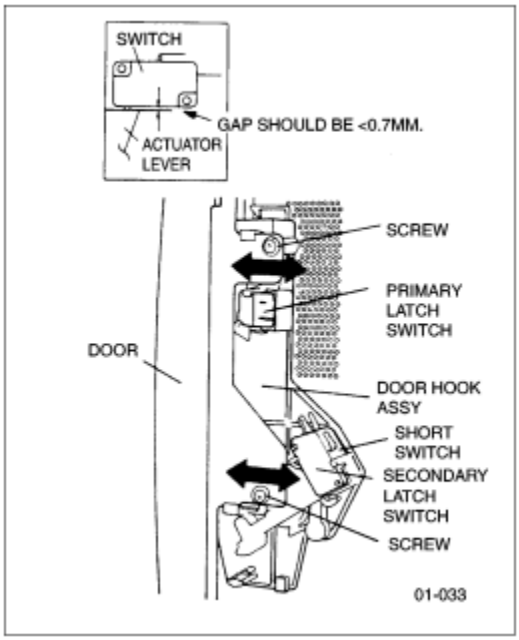
## 6.1 Adjustment of primary latch switch, secondary latch switch and short switch.

1. Mount the Primary latch switch, the Secondary latch switch and the Short switch to the door hook assembly as shown in ILL.

   **NOTE:**

   **No specific individual adjustments during installation of the Primary latch switch, Secondary latch switch or Short switch to the door hook are required.**
2. When mounting the door hook assembly to the oven assembly, adjust the door hook assembly by moving it in the direction of the arrows in the illustration so that the oven door will not have any play in it. Check for play in the door by pulling the door assembly. Make sure that the latch keys move smoothly after adjustment is completed. Completely tighten the screws holding the door hook assembly to the oven assembly.

3. Reconnect the short switch and check the continuity of the monitor circuit and all latch switches again by following the component test procedures.




# 6.2 Measurement of microwave output

The output power of the magnetron can be determined by performing IEC standard test procedures. However,due to the complexity of IEC test procedures, it is recommended to test the magnetron using the simple method outlined below.

Necessary Equipment:

*1 liter beaker *Glass thermometer

*Wrist watch or stopwatch

**NOTE:**

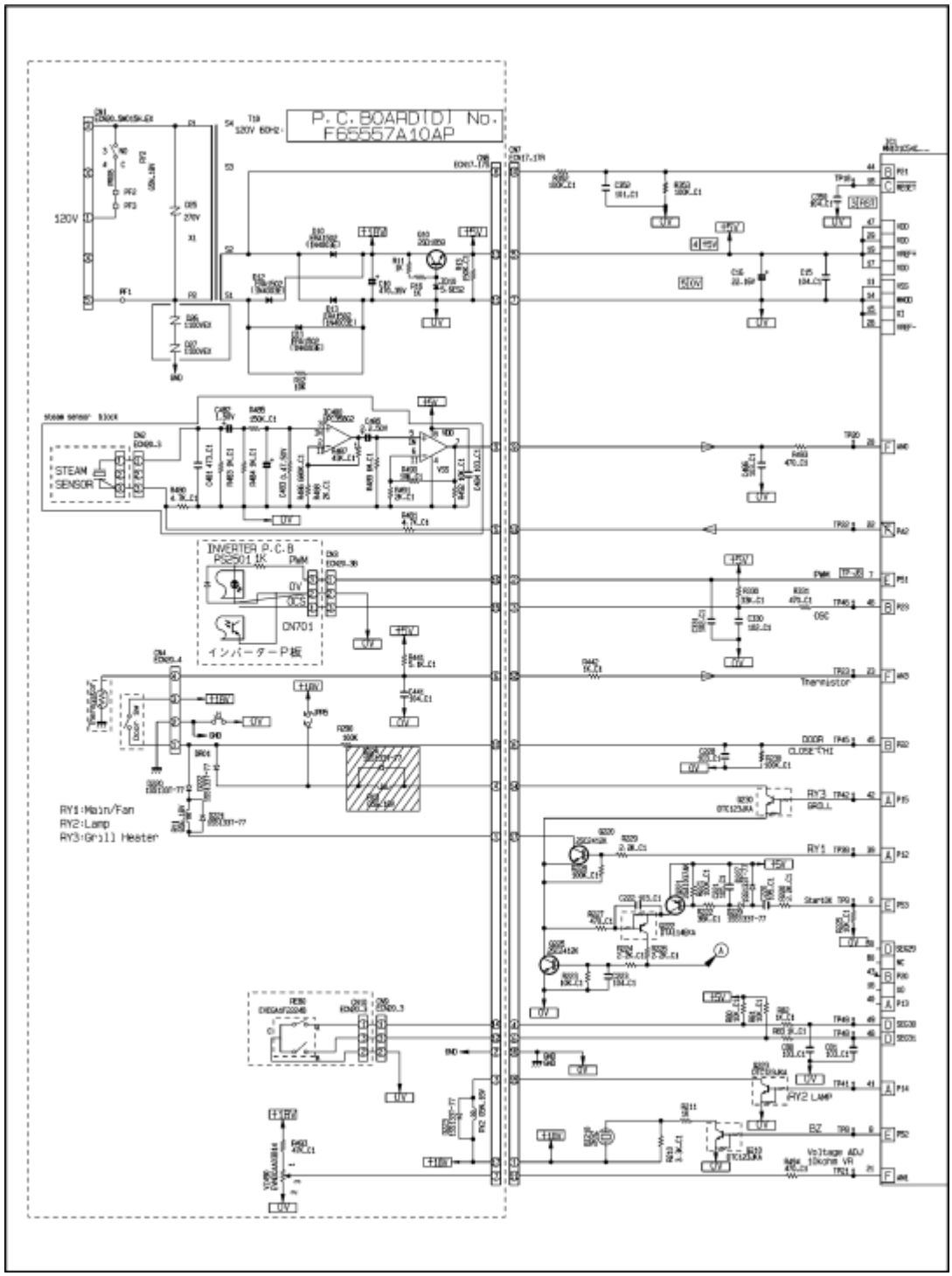
**Check the line voltage under load.Low voltage will lower the magnetron output. Take the temperature readings and heating time as accurately as possible.**

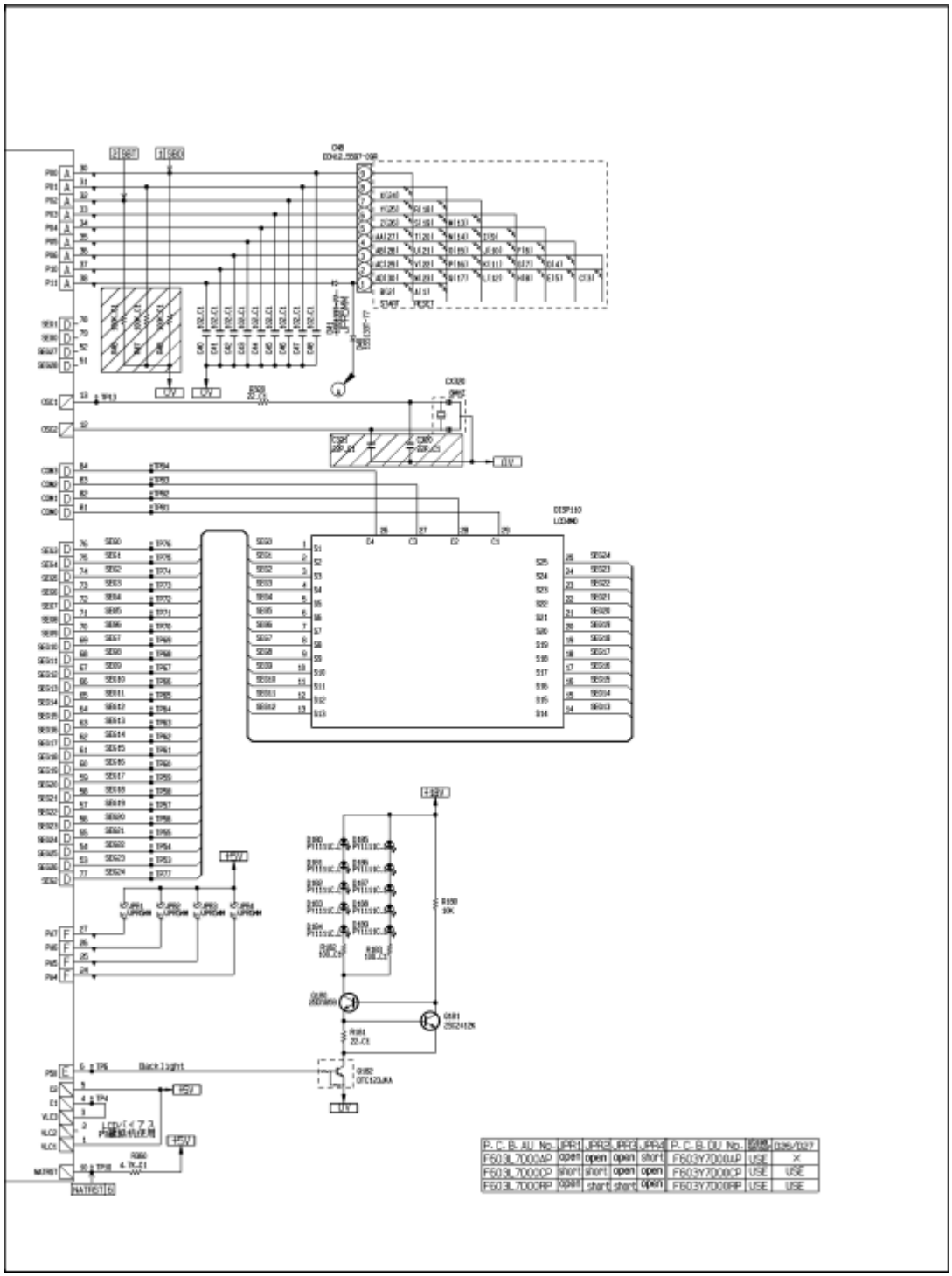
1. Fill the beaker with exactly one liter of tap water.Stir the water using the thermometer and record the water's temperature. (recorded as T1).
2. Place the beaker on the center of glass tray.

   Set the oven for High power and heat it for exactly one minute.
3. Stir the water again and read the temperature of the water. (recorded as T2).
4. The normal temperature rise at High power level for each model is as shown in table.

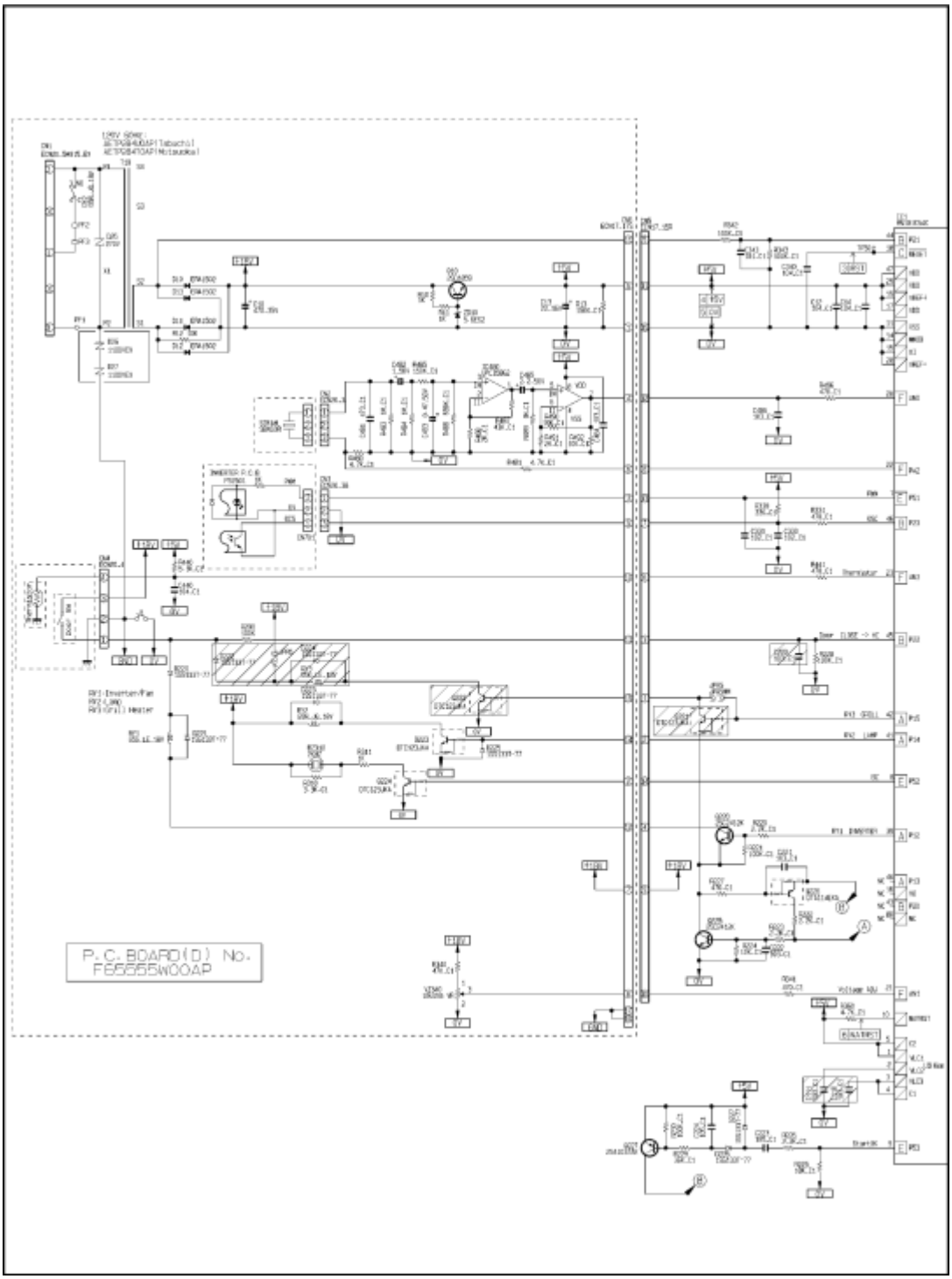
**TABLE (1L-1min.test)**

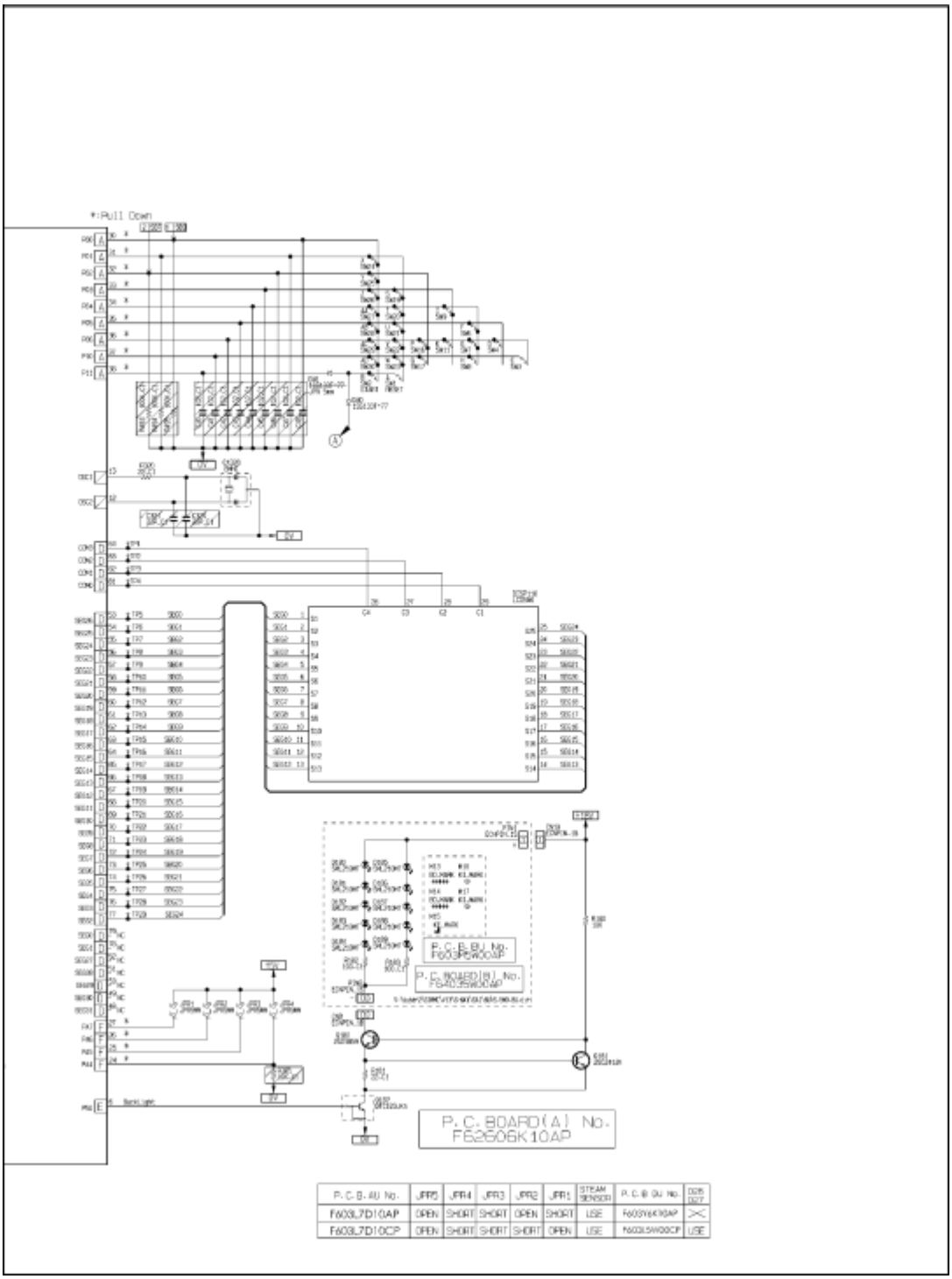
| RATED OUTPUT | TEMPERATURE RISE |
|---|---|
| 1100W | Min. 16.9°F(9.4°C) |
| 1200W | Min. 18.5°F(10.3°C) |
| 1300W | Min. 19.8°F(11.1°C) |


P.C.BOARD(DT No. F655557A10AP)
120V
STEAM SENSOR
INVERTER P.C.B
PS2501 1K
PWM
0V
0.5
DN701
インバーター P.C.B
RY1:Main/Fan
RY2:Lamp
RY3:Grill Heater
DOOR CLOSE"HI
RY3 GRILL
RY1
Start2K
RY2 LAMP
BZ
Voltage ADJ 10kohm VR
OSC
Thermistor
+5V
+15V
+18V
0V

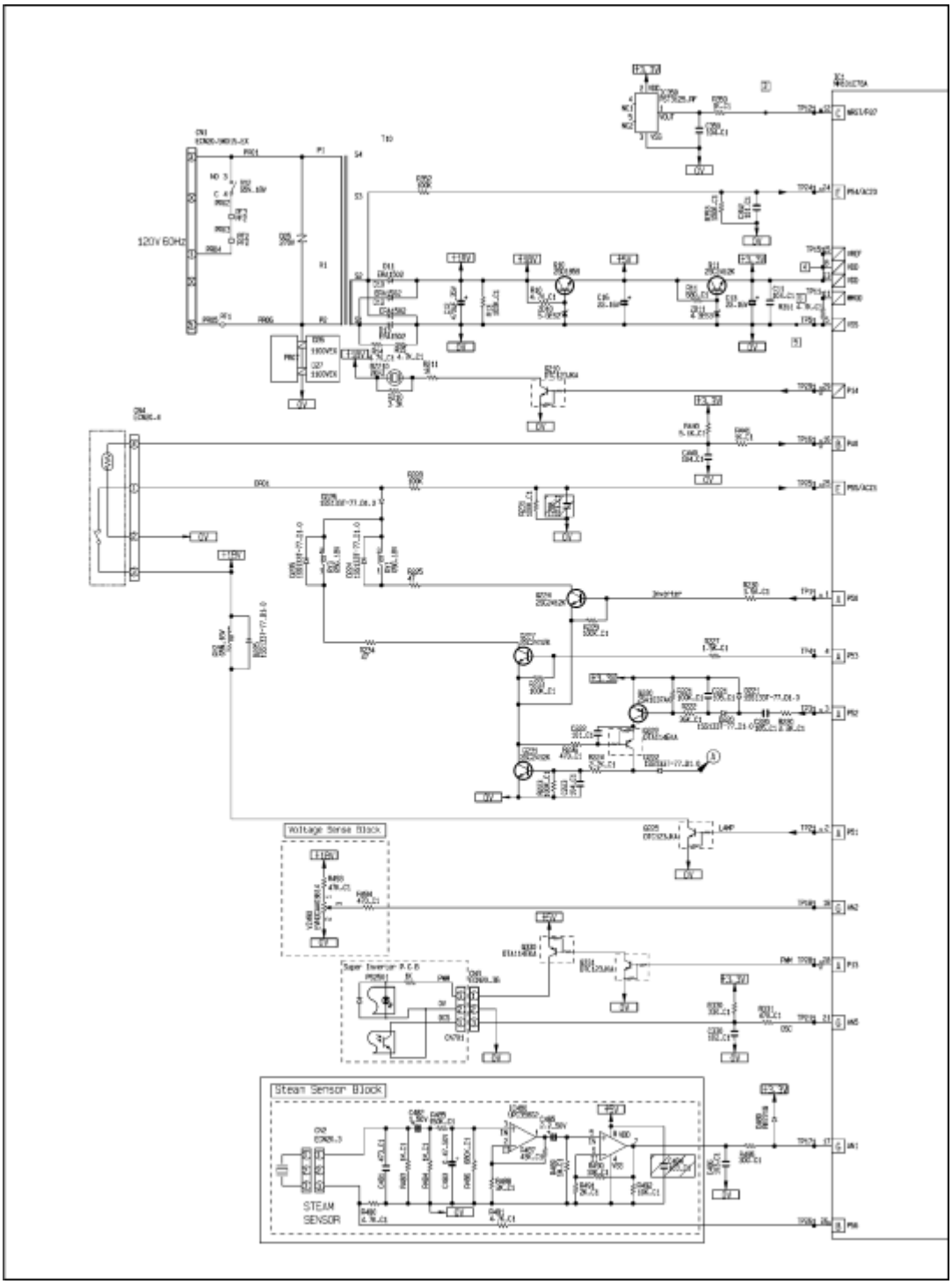


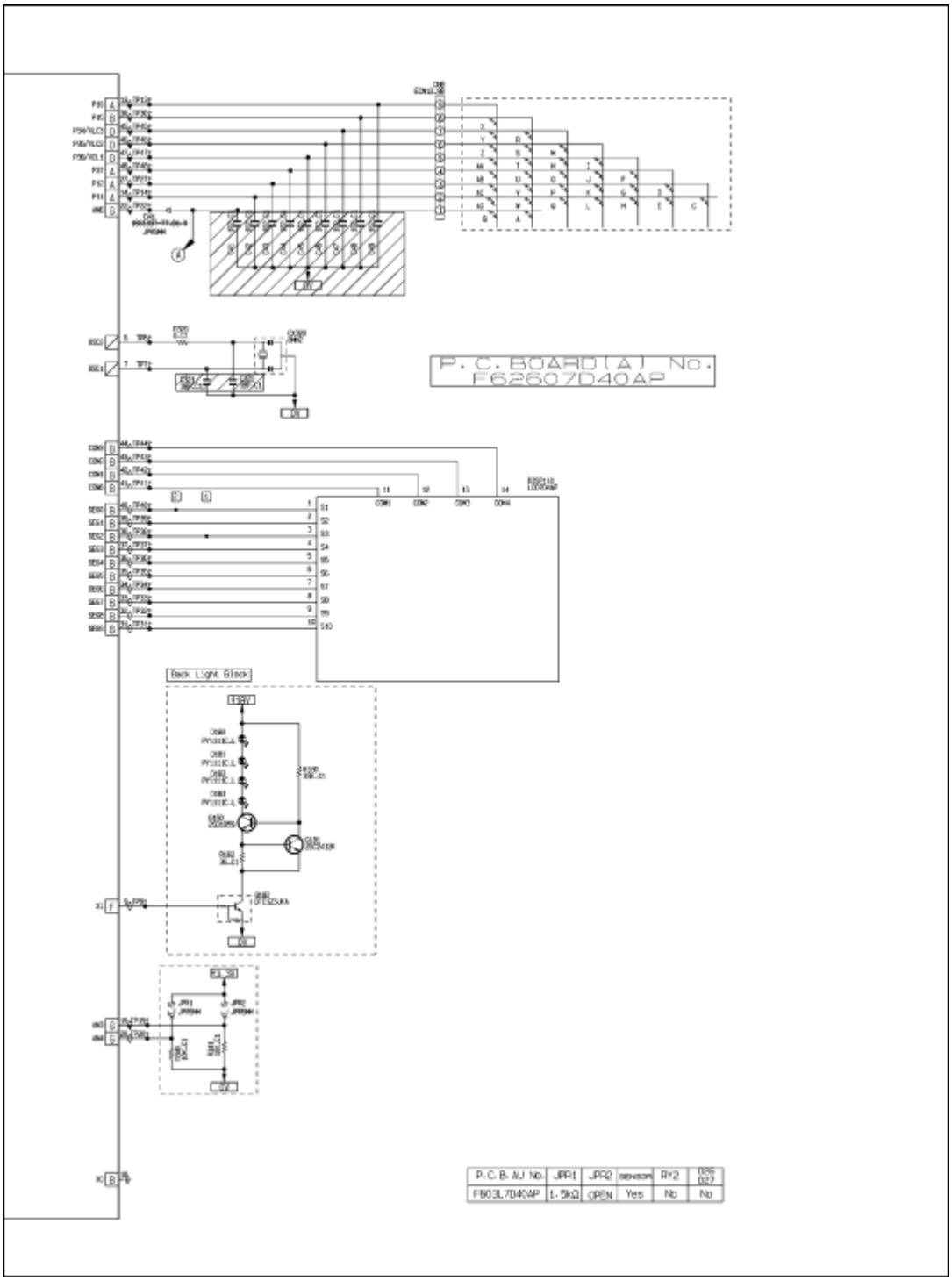
| P.C.B.AU No. | JPR1 | JPR2 | JPR3 | JPR4 | P.C.B.DU No. | 液晶 | DMS/T07 |
|---|---|---|---|---|---|---|---|
| F603L7000AP | open | open | open | short | F603Y7000AP | USE | × |
| F603L7000CP | short | short | open | open | F603Y7000CP | USE | USE |
| F603L7000RP | open | short | short | open | F603Y7000RP | USE | USE |


P.C.BOARD(D) No.
F655555W00AP

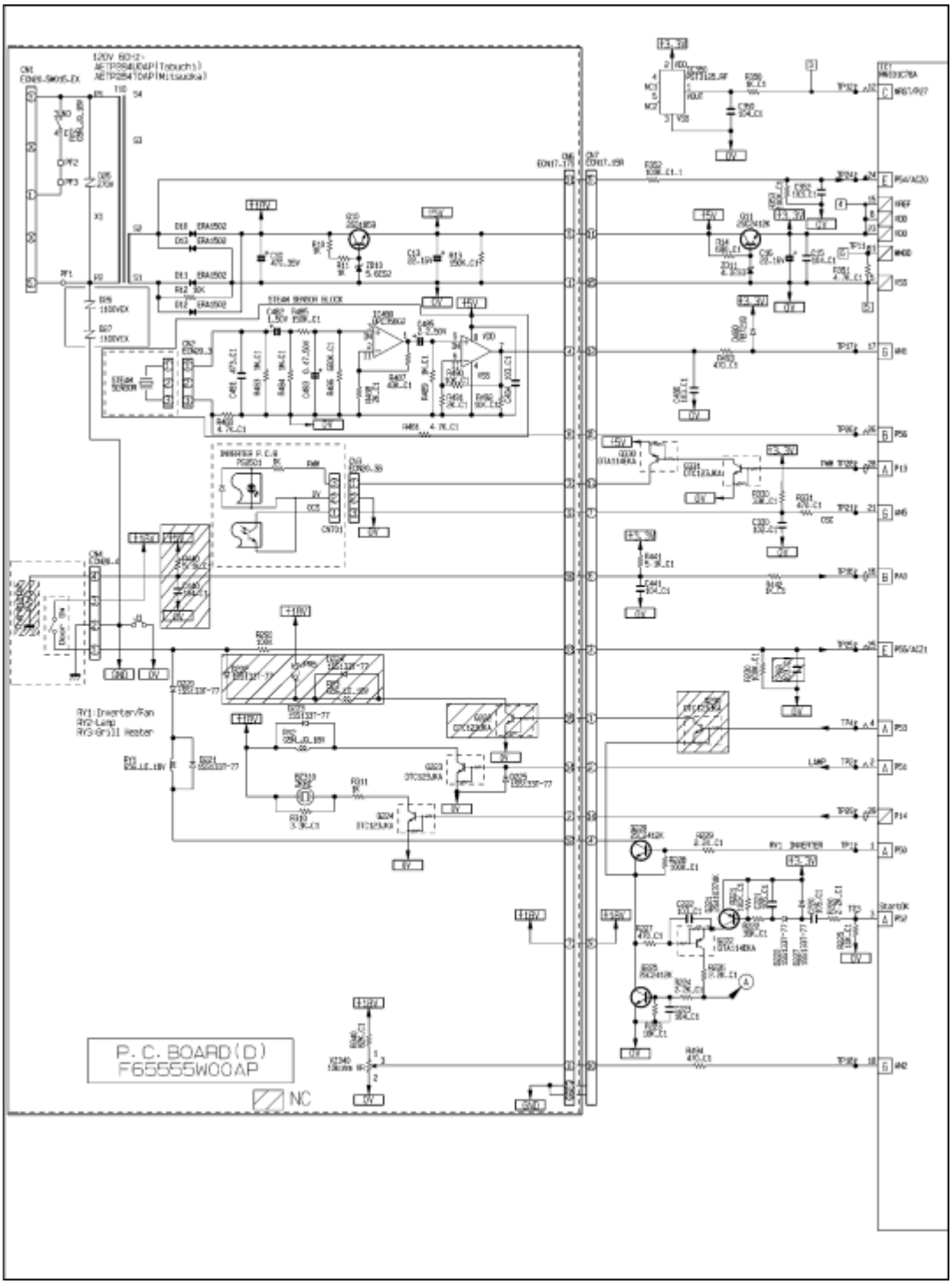


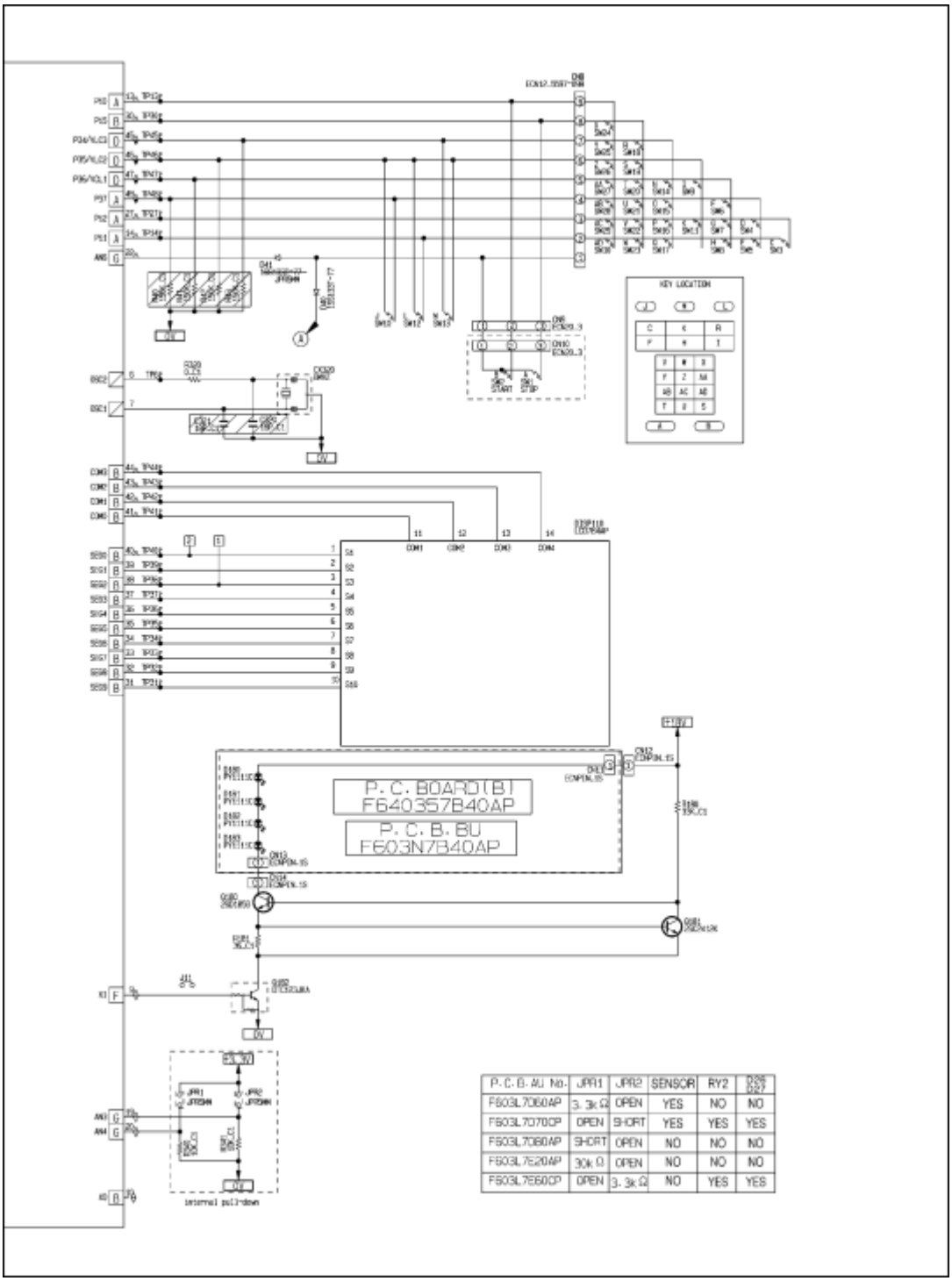

| P.C.B.AU No. | JPR5 | JPR4 | JPR3 | JPR2 | JPR1 | STEAM SENSOR | P.C.B BU No. | DOS DOT |
|---|---|---|---|---|---|---|---|---|
| F603L7D10AP | OPEN | SHORT | SHORT | OPEN | SHORT | USE | F603Y6K10AP | >< |
| F603L7D10CP | OPEN | SHORT | SHORT | SHORT | OPEN | USE | F603L5W00CP | USE |


120V 60Hz
Voltage Sense Block
Super Inverter P.C.B
Steam Sensor Block
STEAM
SENSOR

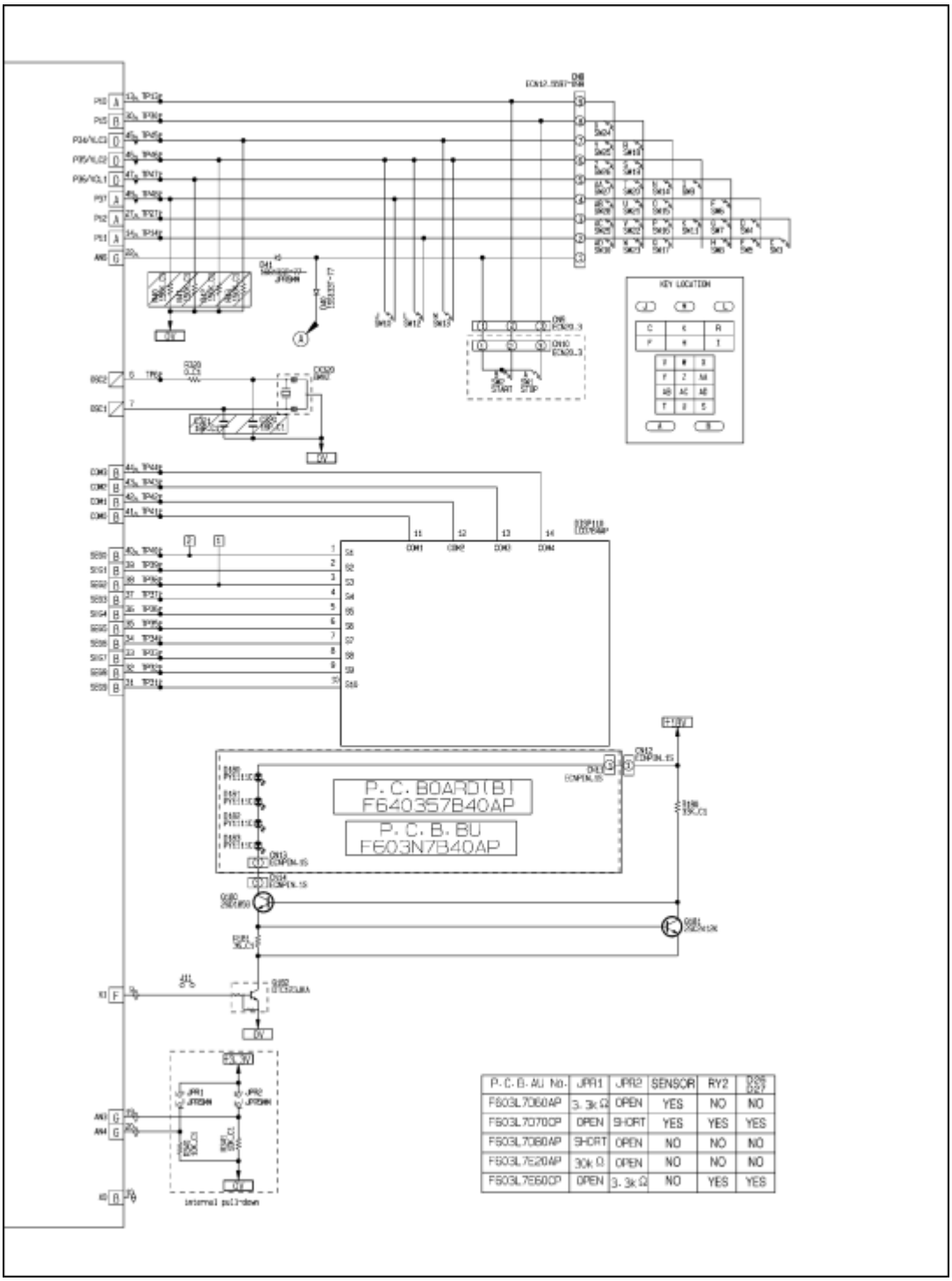



| P.C.B.AU No. | JPR1 | JPR2 | resistor | R12 | D26 (127) |
|---|---|---|---|---|---|
| F6013L7D40AP | 1.5kΩ | OPEN | Yes | No | No |

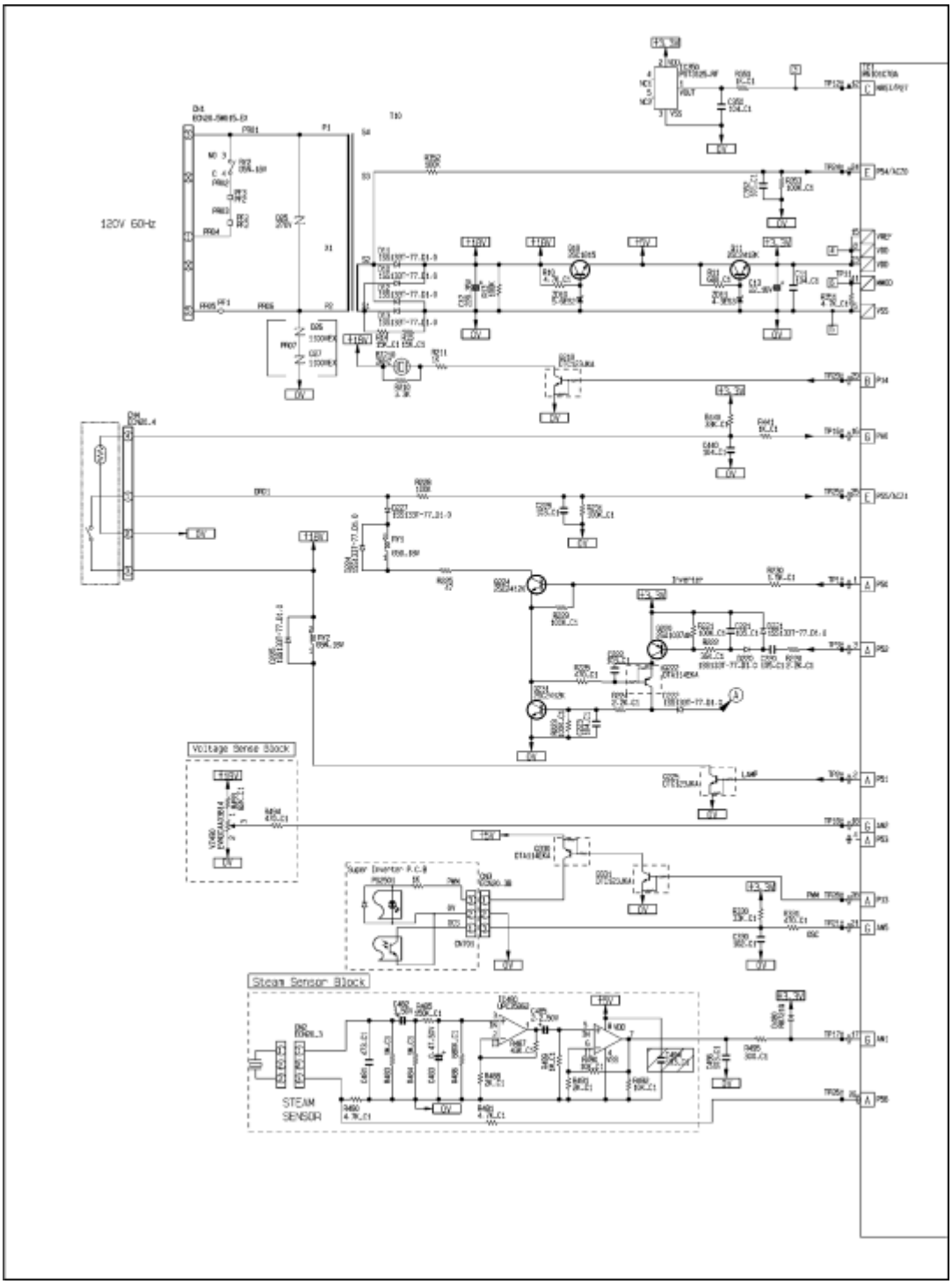

120V 60Hz
AETP864UDAP(Touch)
AETP264TDAP(Mitsubishi)
INVERTER P.C.B
RY1:Inverter/Fan
RY2:Lamp
RY3:Grill Heater
P. C. BOARD(D)
F65555W00AP
NC

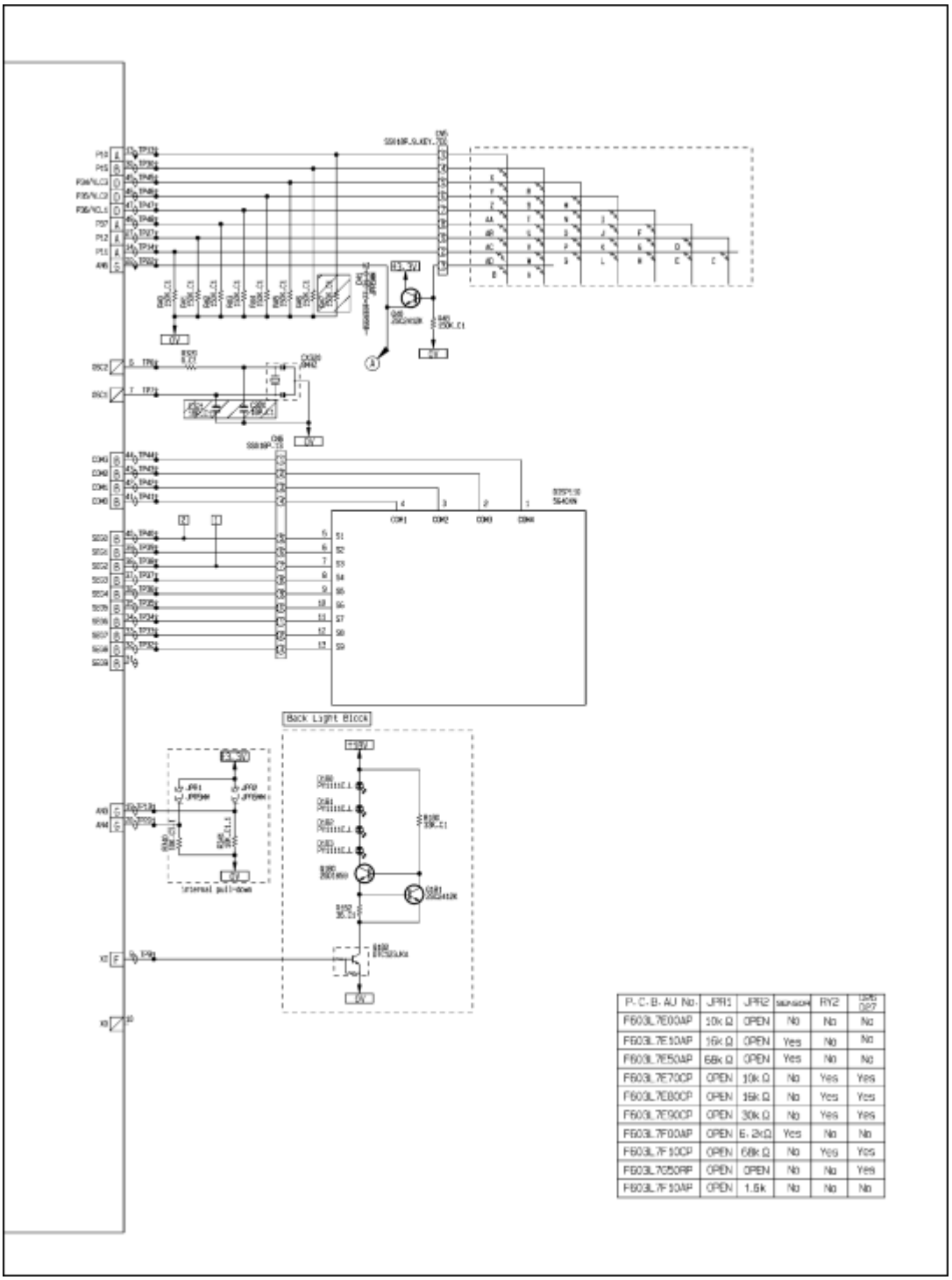



| P. C. B. AU No. | JPR1 | JPR2 | SENSOR | RY2 | D26 D27 |
|---|---|---|---|---|---|
| F603L7D60AP | 3.3k Ω | OPEN | YES | NO | NO |
| F603L7D70CP | OPEN | SHORT | YES | YES | YES |
| F603L7D80AP | SHORT | OPEN | NO | NO | NO |
| F603L7E20AP | 30k Ω | OPEN | NO | NO | NO |
| F603L7E60CP | OPEN | 3.3k Ω | NO | YES | YES |




| P. C. B. AU No. | JPR1 | JPR2 | SENSOR | RY2 | D26 D27 |
|---|---|---|---|---|---|
| F603L7D60AP | 3.3k Ω | OPEN | YES | NO | NO |
| F603L7D70CP | OPEN | SHORT | YES | YES | YES |
| F603L7D80AP | SHORT | OPEN | NO | NO | NO |
| F603L7E20AP | 30k Ω | OPEN | NO | NO | NO |
| F603L7E60CP | OPEN | 3.3k Ω | NO | YES | YES |


120V 60Hz
Voltage Sense Block
Super Inverter P.C.B
Steam Sensor Block
STEAM
SENSOR
Inverter




| P.C.B. AU No. | JPR1 | JPR2 | [illegible] | RY2 | [illegible] |
|---|---|---|---|---|---|
| F603L7E00AP | 10k Ω | OPEN | No | No | No |
| F603L7E10AP | 15k Ω | OPEN | Yes | No | No |
| F603L7E50AP | 68k Ω | OPEN | Yes | No | No |
| F603L7E70CP | OPEN | 10k Ω | No | Yes | Yes |
| F603L7E80CP | OPEN | 15k Ω | No | Yes | Yes |
| F603L7E90CP | OPEN | 30k Ω | No | Yes | Yes |
| F603L7F00AP | OPEN | 6.2kΩ | Yes | No | No |
| F603L7F10CP | OPEN | 68k Ω | No | Yes | Yes |
| F603L7050RP | OPEN | OPEN | No | No | Yes |
| F603L7F10AP | OPEN | 1.5k | No | No | No |

# 7 PROCEDURE FOR MEASURING MICROWAVE ENERGY LEAKAGE

**WARNING**

Check for radiation leakage after every servicing. Should the leakage be more than 2 mW/cm² (1mW/cm² for Canada) inform PASC, PSC, or PCI immediately. After repairing or replacing any radiation safety device, keep a written record for future reference, as required by D.H.H.S. and Health and Welfare Canada regulation. This requirement must be strictly observed. In addition, the leakage reading must be recorded on the service repair ticket while in the customer's home.

**NOTE:**

**The U.S. Government standard is 5 mW/cm $^2$ while in the customer's home. 2mW/cm $^2$ stated here is our own voluntary standard. (1mW/cm $^2$ for Canada)**

## 7.1 Equipment

- Electromagnatic radiation monitor
- Glass thermometer 212°F or 100°C
- 600cc glass beaker

## 7.2 Procedure for measuring radiation leakage

Note before measuring.

- Do not exceed meter full scale deflection. Leakage monitor should initially be set to the highest scale.
- To prevent false readings the test probe should be held by the grip portion of the handle only and moved along the shaded area in Figure no faster than 1 inch/sec (2.5cm/sec).
- Leakage with the outer panel removed ..... less than 5mW/cm $^2$ .
- Leakage for a fully assembled oven with door normally closed ..... less than 2mW/cm $^2$ (1mW/cm $^2$ for Canada).
- Leakage for a fully assembled oven [Before the latch switch (primary) is interrupted] while pulling the door ..... less than 2mW/cm $^2$ .

1. Pour 275 ± 15cc (9ozs $^S$ ± 1/2oz) of 20°C ± 5°C (68° ± 9°F) water in a beaker which is graduated to 600cc, and place in the center of the oven.
2. Set the radiation monitor to 2450MHz and use it following the manufacturer s recommended test procedure to assure correct results.
3. When measuring the leakage, always use the 2 inch (5cm) spacer supplied with the probe.
4. Tap the start pad or set the timer and with the magnetron oscillating, measure the leakage by holding the probe perpendicular to the surface being measured.

### 7.2.1 Measurement with the outer panel removed.

Whenever you replace the magnetron, measure for radiation leakage before the outer panel is installed and after all necessary components are replaced or adjusted. Special care should be taken in measuring around the magnetron.

**WARNING**

Avoid contacting any high voltage parts.

### 7.2.2 Measurements with a fully assembled oven.

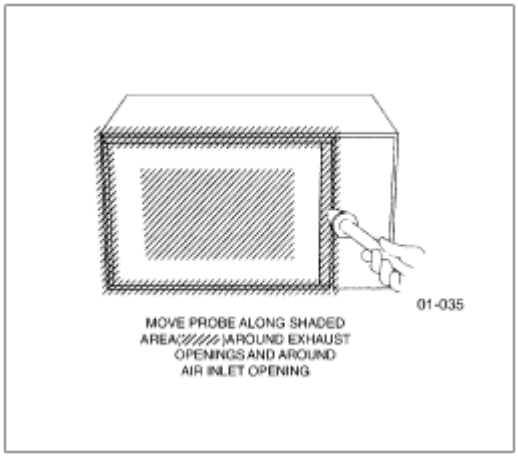
After all components, including outer panel are fully assembled, measure for radiation leakage around the door periphery, the door viewing window, the exhaust opening and air inlet openings.

## 7.3 Record keeping and notification after

## measurement

- After any adjustment or repair to a microwave oven, a leakage reading must be taken. Record this leakage reading on the repair ticket even if it is zero.
  A copy of this repair ticket and the microwave leakage reading should be kept by repair facility.
- Should the radiation leakage be more than 2 mW/cm $^2$ (1mW/cm for Canada) after determining that all parts are in good condition, functioning properly, and genuine replacement parts as listed in this manual have been used, immediately notify PASC, PSC or PCI.

## 7.4 At least once a year, have the radiation monitor checked for calibration by its manufacturer.



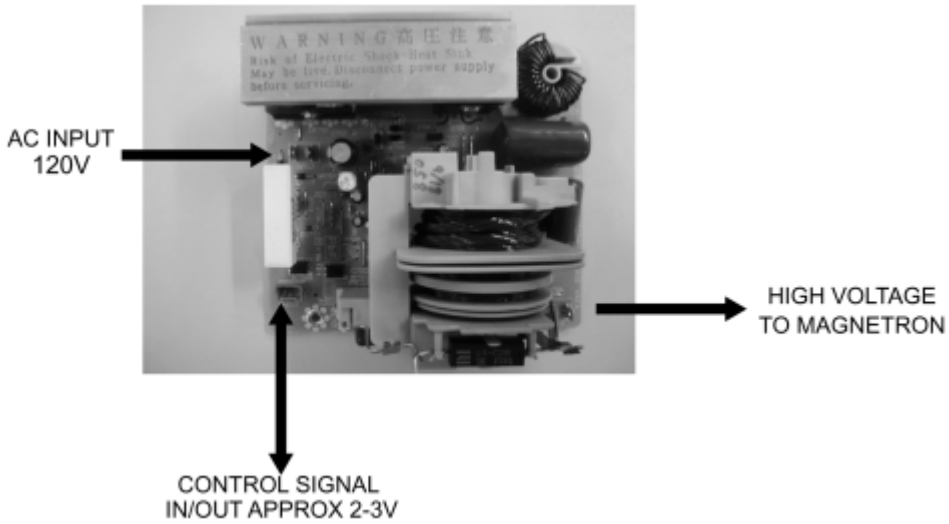
# 8 TROUBLESHOOTING GUIDE

| | |
|---|---|
| | **DANGER HIGH VOLTAGES** ⚠ |
| 1. | **DO NOT RE-ADJUST PRESET CONTROL on the H.V.Inverter (U).** It is very dangerous to repair or adjust without proper test equipment because this circuit handles very large current and high voltage. Operating a misaligned inverter circuit is dangerous. |
| 2. | Ensure proper grounding before checking for trouble. |
| 3. | Be careful of the high voltage circuitry, taking necessary precautions when troubleshooting. |
| 4. | Discharge high voltage remaining in the H.V.Inverter (U). |
| 5. | When checking the continuity of the switches or the H.V.Inverter, disconnect one lead wire from these parts and then check continuity with the AC plug removed. To do otherwise may result in a false reading or damage to your meter. When disconnecting a plastic connector from a terminal, you must hold the plastic connector instead of the lead wire and then disconnect it, otherwise lead wire may be damaged or the connector cannot be removed. |
| 6. | Do not touch any parts of the circuitry on the digital programmer circuit, since static electric discharge may damage this control panel. Always touch yourself to ground while working on this panel to discharge any static charge in your body. |
| 7. | 120V AC is present on the digital programmer circuit (Terminals of power relay's and primary circuit of Digital Programmer Circuit). When troubleshooting, be cautious of possible electrical shock hazard. |

Before troubleshooting, operate the microwave oven following the correct operating procedures in the instruction manual in order to find the exact cause of any trouble, since operator error may be mistaken for the oven's malfunction.

## 8.1 (Trouble) Oven stops operation during cooking

| | SYMPTOM | CAUSE | CORRECTIONS |
|---|---|---|---|
| 1. | **Oven stops in 3 seconds** after pressing start pad | No 120V AC is supplied to H.V.Inverter (U) CN702 terminals | 1. Latch Switch<br>2. Power relay RY-1<br>3. Loose lead wire connector CN701, CN702 |
| | **Oven stops in 23 seconds** after pressing start pad | H.V.Inverter (U) operates by the control signals from DPC but magnetron is not oscillating | 1. Magnetron<br>2. Loose lead wire connector CN703 |
| | **Oven stops in 10 seconds** after pressing start pad (Auto sensor cooking) | Steam sensor circuit does not function | 1. Steam sensor<br>2. DPC<br>3. Loose wiring connector CN2 |
| 2. | No display and no operation at all.<br>Fuse is blown. | Most probably loose connection of connectors, or door latch mechanism is not adjusted properly | 1. Allign door, Door Latch Switches<br>2. Loose wiring connectors |

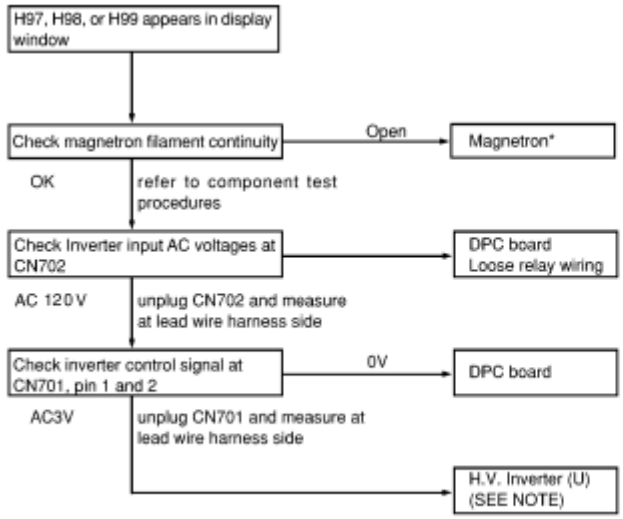



| | SYMPTOM | | CAUSE | CORRECTIONS |
|---|---|---|---|---|
| 1. | Oven is dead.<br>Fuse is OK.<br>No display and no operation at all. | 1.<br>2.<br>3.<br>4. | Open or loose lead wire harness<br>Open thermal cutout<br>Open low voltage transformer<br>Defective DPC | Check fan motor if thermal cutout is defective. |
| 2. | No display and no operation at all.<br>Fuse is blown. | 1.<br>2. | Shorted lead wire harness<br>Defective primary latch switch (NOTE 1) | Check adjustment of primary, secondary latch switch and short switch including door. |
| | | 3. | Defective short switch (NOTE 1) | |
| | | 4. | Defective Inverter Power Supply (U) | |
| | | | NOTE 1:<br>All of these switches must be replaced at the same time.<br>Check continuity of power relay B (RY-1) s contacts (between 1 and 2) and if it has continuity, replace power relay B (RY-1) also. | |
| 3. | Oven does not accept key input(Program) | 1.<br>2. | Key input is not in proper sequence<br>Open or loose connection of membrane key pad to DPC (Flat cable) | Refer to operation procedure. |
| | | 3. | Shorted or open membrane key board | |
| | | 4. | Defective DPC | Refer to DPC troubleshooting. |
| 4. | Fan motor turns on when oven is plugged in with door closed. | 1. | Misadjustment or loose wiring of secondary latch switch | Adjust door and latch switches. |
| | | 2. | Defective secondary latch switch | |
| 5. | Timer starts count down but no microwave oscillation.<br>(No heat while oven lamp and fan motor turn on) | 1.<br>2. | Off-alignment of latch switches<br>Open or loose connection of high voltage circuit especially magnetron filament circuit<br>NOTE:<br>Large contact resistance will cause lower magnetron filament voltage and cause magnetron to have lower output and/or be intermittent. | Adjust door and latch switches. |
| | | 3. | Defective high voltage component<br>H.V. Inverter Power Supply (u)<br>Magnetron | Check high voltage component according to component test procedure and replace if it is defective. |
| | | 4. | Open or loose wiring of power relay B (RY-1) | |
| | | 5. | Defective primary latch switch | |
| | | 6. | Defective DPC or power relay B (RY-1) | Refer to DPC troubleshooting |
| 6. | Oven can program but timer does not start countdown. | 1. | Open or loose wiring of secondary latch switch | |
| | | 2. | Off-alignment of secondary latch switch | |
| | | 3. | Defective secondary latch switch | |
| 7. | Microwave output is low. Oven takes longer time to cook food. | 1. | Decrease in power source voltage | Consult electrician |
| | | 2. | Open or loose wiring of magnetron filament circuit.(Intermittent oscillation) | |
| | | 3. | Aging change of magnetron | |
| | Fan motor turns on and | | | |

| | | | | |
|---|---|---|---|---|
| 8. | turntable rotates when door is opened. | 1. | Shorted primary latch switch | |
| 9. | Oven does not operate and return to plugged in mode as soon as start pad is pressed. | 1. | Defective DPC | Check tighten screws on escutcheon base bracket, D.P.C. board. |
| 10. | Loud buzzing noise can be heard. | 1. | Loose fan and fan motor | |
| 11. | Turntable motor does not rotate. | 1. | Open or loose wiring of turntable motor | |
| | | 2. | Defective turntable motor | |
| 12. | Oven stops operation during cooking. | 1. | Open or loose wiring of primary and secondary latch switch | Adjust door and latch switches. |
| | | 2. | Operation of thermal cutout | |
| 13. | Oven returns to plugged in mode after 10 seconds elapses on the Auto sensor cooking mode. | 1. | Open or loose wiring of sensor terminal from DPC | |
| | | 2. | Open steam sensor | |
| | | 3. | Defective DPC | |

# 8.2 Troubleshooting of inverter circuit (U) and magnetron NEW H.V.

This oven is programmed with a self diagnostics failure code system which will help for troubleshooting. H97, H98, and H99 are the provided failure codes to indicate magnetron and inverter circuit problem areas. This section explains failure codes of H97, H98, and H99. First, you must program the DPC by pressing Clock, Timer, Start, Power Level. Program unit for operation. H97, H98, H99 appears in display window a short time after start key is pressed and there is no microwave oscillation.


H97, H98, or H99 appears in display window
Check magnetron filament continuity
Open
Magnetron*
OK
refer to component test procedures
Check Inverter input AC voltages at CN702
DPC board
Loose relay wiring
AC 120 V
unplug CN702 and measure at lead wire harness side
Check inverter control signal at CN701, pin 1 and 2
0V
DPC board
AC3V
unplug CN701 and measure at lead wire harness side
H.V. Inverter (U) (SEE NOTE)

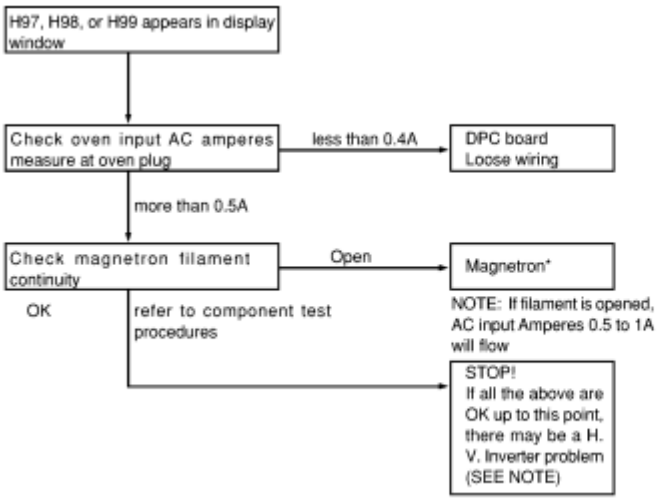
**NOTE: After check, unplug unit to reset to normal operation mode.**

NOTE: DO NOT try to repair this Inverter Power Supply (U) and also DO NOT RE-ADJUST PRESET CONTROL on the board. It is very dangerous to repair or adjust without proper test equipment because this circuit handles very high voltage and very large current. Off alignment of inverter board operation is dangerous. Operating a misaligned Inverter circuit is dangerous due to the very high voltage and current that is produced by this board. Defective boards must be replaced with a new one.

* Check magnetron filament for open or short to case before proceeding to determine a good magnetron.

**Alternate way to troubleshoot oven with AC Ampere meter used**

H97, H98, H99 appears in display window a short time after start key is pressed and no microwave oscillation with AC Ampere meter used for troubleshooting


H97, H98, or H99 appears in display window
Check oven input AC amperes measure at oven plug
less than 0.4A
DPC board
Loose wiring
more than 0.5A
Check magnetron filament continuity
Open
Magnetron*
OK
refer to component test procedures
NOTE: If filament is opened, AC input Amperes 0.5 to 1A will flow
STOP!
If all the above are OK up to this point, there may be a H. V. Inverter problem (SEE NOTE)

**NOTE: After check, unplug unit to reset to normal operation mode.**

NOTE: DO NOT try to repair this Inverter Power Supply (U) and also DO NOT

RE-ADJUST PRESET CONTROL on the board. It is very dangerous to repair or adjust without proper test equipment because this circuit handles very high voltage and very large current. Off alignment of inverter board operation is dangerous. Operating a misaligned Inverter circuit is dangerous due to the very high voltage and current that is produced by this board. Defective boards must be replaced with a new one.

* Check magnetron filament for open or short to case before proceeding to determine a good magnetron.

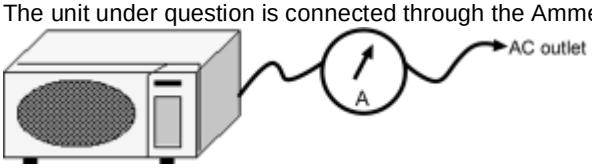
# 8.3 Simple way of H.V. Inverter/magnetron troubleshooting

**Purpose:**

Simple way **(3/23 seconds rule)** of identifying whether it's Magnetron, Inverter, or others.

**Set-up:**

The unit under question is connected through the Ammeter as shown below.




**Procedure:**

Follow the matrix table below to identify the problem source.

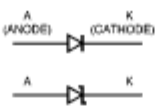
**Note:**

**Do not replace both Inverter board and Magnetron simultaneously and automatically without going through this procedure.**

| Power will: | Ammeter reading is: | To do: | Remedy: |
|---|---|---|---|
| Shut off in 23 seconds after "Start". | 1. Between 0.5A and 1.0A. | Check and repair open magnetron circuit | Open magnetron wiring between Inverter and magnetron terminal. |
| | 2. Between 1.0A and 2.0A. | Check continuity of D702 in Inverter PCB. | |
| | | ⇩ | |
| | | 1. D702 shorted | Replace **H.V.Inverter** (F606Y6G00AP/F606Y6G00CP) |
| | | 2. D702 is OK | Replace **magnetron** |
| Shut off in 3 seconds after "Start" | 1. Less than 0.5A | Check open circuit: Latch Switch, DPC, Power Relay and CN701 | Replace defective component(s), or correct switch, cables and connectors. |

# 8.4 How to check the semiconductors using an OHM meter

## Diode



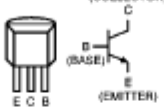

| | FORWARD | REVERSE |
|---|---|---|
| A-K | SMALL | ∞ |

## Transistor

### NPN Transistor

2SC·····

2SD·····

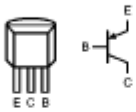



| | FORWARD | REVERSE |
|---|---|---|
| B-E | SMALL | ∞ |
| B-C | SMALL | ∞ |
| C-E | ∞ | ∞ |

### PNP Transistor

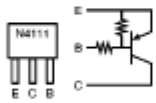
2SA·····

2SB·····



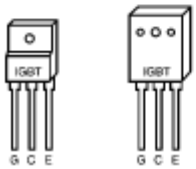

| | FORWARD | REVERSE |
|---|---|---|
| B-E | SMALL | ∞ |
| C-B | SMALL | ∞ |
| C-E | ∞ | ∞ |

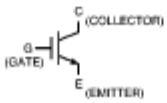
## Digital Transistor
### PNP Transistor




| | FORWARD | REVERSE |
|---|---|---|
| E-B | 10kΩ ~ 30kΩ | 10kΩ ~ 30kΩ |
| C-B | 50kΩ ~ 90kΩ | ∞ |
| C-E | 40kΩ ~ 80kΩ | ∞ |

## IGBT
## (INSULATED GATE BIPOLAR TRANSISTOR)




| | FORWARD | REVERSE |
|---|---|---|
| E-C | SMALL | ∞ |
| E-G | ∞ | ∞ |
| C-G | ∞ | ∞ |

# 9 EXPLODED VIEW AND PARTS LIST

## 9.1 EXPLODED VIEW

## 9.2 PARTS LIST

**NOTE:**

1. When ordering replacement part(s), please use part number(s) shown in this part list.
   Do not use description of the part.
2. Important safety notice:
   Components identified by ⚠ mark have special characteristics important for safety.
   When replacing any of these components, use only manufacture's specified parts.

| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| 1 | | F00064W70AP | CAUTION LABEL | 1 | T6*5SF APH,T664SFR APH |
| 1 | | F00069660AP | CAUTION LABEL | 1 | H6*5 APH,S6*5 APH,S505 APH,H624*FR APH, H504*FR APH,T695 RPH,S6*5 RPH |
| 1 | | F00067600CP | CAUTION LABEL | 1 | CPH |
| 2 | | F00077D60BAP | NAME PLATE | 1 | H665BF APH |
| 2 | | F00077D60HAP | NAME PLATE | 1 | H665WF APH |
| 2 | | F00077F50BAP | NAME PLATE | 1 | H635BF APH |
| 2 | | F00077F50HAP | NAME PLATE | 1 | H635WF APH |
| 2 | | F00077D80BAP | NAME PLATE | 1 | S655BF APH |
| 2 | | F00077D80HAP | NAME PLATE | 1 | S655WF APH |
| 2 | | F00077E20SAP | NAME PLATE | 1 | S645MF APH |
| 2 | | F00077E20BAP | NAME PLATE | 1 | S645BF APH |
| 2 | | F00077E20HAP | NAME PLATE | 1 | S645WF APH |
| 2 | | F00077E00BAP | NAME PLATE | 1 | S635BF APH |
| 2 | | F00077E00HAP | NAME PLATE | 1 | S635WF APH |
| 2 | | F00077Z50BAP | NAME PLATE | 1 | H624BFR APH |
| 2 | | F00077Z50HAP | NAME PLATE | 1 | H624WFR APH |
| 2 | | F00077E10BAP | NAME PLATE | 1 | H645BF APH |
| 2 | | F00077E10HAP | NAME PLATE | 1 | H645WF APH |
| 2 | | F00077E50BAP | NAME PLATE | 1 | H625BF APH |
| 2 | | F00077E50HAP | NAME PLATE | 1 | H625WF APH |
| 2 | | F00077F00BAP | NAME PLATE | 1 | H504BFR APH |
| 2 | | F00077F00HAP | NAME PLATE | 1 | H504WFR APH |
| 2 | | F00077F10BAP | NAME PLATE | 1 | S505BF APH |
| 2 | | F00077F10HAP | NAME PLATE | 1 | S505WF APH |
| 2 | | F00077D90HRP | NAME PLATE | 1 | S655WF RPH |
| 2 | | F00077G50HRP | NAME PLATE | 1 | S655WM RPH |
| 2 | | F00077G60HRP | NAME PLATE | 1 | S645WM RPH |
| 3 | | F00337D00AP | FUSE LABEL | 1 | APH,CPH |
| 3 | | F00337D00RP | FUSE LABEL | 1 | RPH |
| 4 | | F10016K10AP | BASE | 1 | |
| 5 | | F10084T00AP | RUBBER FOOT | 4 | |
| 6 | | F110D5Y00SAP | CABINET BODY (U) | 1 | T695SF/SM,T685SF |

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| 6 | | F110D5Y30SAP | CABINET BODY (U) | 1 | T664SFR |
| 6 | | F110D5Y40SAP | CABINET BODY (U) | 1 | T675SF,T665SF,T655SF |
| 6 | | F110D5L70SAP | CABINET BODY (U) | 1 | S645MF |
| 6 | | F110D5Y30BAP | CABINET BODY (U) | 1 | H6*5BF,S6*5BF,S505BF,H624BFR,H504BFR |
| 6 | | F110D5Y30HCP | CABINET BODY (U) | 1 | H6*5WF,S6*5WF/WM,S505WF,H624WFR,H504WFR |
| 7 | ⚠ | F200A5Y30AP | OVEN (U) | 1 | T6*5SF APH/CPH,T695SF/SM RPH,T664SFR APH,<br>H6*5 APH/CPH,H624*FR APH,H504*FR APH |
| 7 | ⚠ | F200A5Y40AP | OVEN (U) | 1 | S6*5 APH/CPH/RPH,S505 APH/CPH |
| 8 | | F20555L00AP | COVER | 1 | |
| 9 | | F21315Y00AP | PULLY SHAFT | 1 | |
| 10 | | F2177-F80 | WASHER | 1 | |
| 11 | | F290D9330AP | ROLLER RING (U) | 1 | |
| 12 | ⚠ | F30206G30AP | DOOR HOOK | 1 | T6*5SF APH/CPH,T695SF/SM RPH,T664SFR APH |
| 12 | ⚠ | F30206K50AP | DOOR HOOK | 1 | H6*5 APH/CPH,S**5 APH/CPH/RPH,<br>H624*FR APH,H504*FR APH |
| 13 | | F3097-5L00 | LATCH SPRING | 1 | H6*5 APH/CPH,S**5 APH/CPH/RPH,<br>H624*FR APH,H504*FR APH |
| 14 | | F31366G30AP | HOOK LEVER A | 1 | T6*5SF APH/CPH,T695SF/SM RPH,T664SFR APH |
| 14 | | F31366K50AP | HOOK LEVER A | 1 | H6*5 APH/CPH,S**5 APH/CPH/RPH,<br>H624*FR APH,H504*FR APH |
| 15 | | F31376G30AP | HOOK LEVER B | 1 | T6*5SF APH/CPH,T695SF/SM RPH,T664SFR APH |
| 15 | | F31376K50AP | HOOK LEVER B | 1 | H6*5 APH/CPH,S**5 APH/CPH/RPH,<br>H624*FR APH,H504*FR APH |
| 16 | | F31386G30AP | HOOK LEVER C | 1 | T6*5SF APH/CPH,T695SF/SM RPH,T664SFR APH |
| 16 | | F31386K50AP | HOOK LEVER C | 1 | H6*5 APH/CPH,S**5 APH/CPH/RPH,<br>H624*FR APH,H504*FR APH |
| 17 | | F400A4T00AP | FAN MOTOR | 1 | AC120V,SINGLE PHASE,60Hz |
| 18 | | F40084T00AP | FAN BLADE | 1 | |
| 19 | | F40257D00AP | AIR GUIDE A | 1 | |
| 20 | | F41445Y00AP | ORIFICE | 1 | |
| 21 | | A707S4T00AP | STEAM SENSOR | 1 | T6*5SF APH/CPH,T695SF/SM RPH,T664SFR APH,<br>H6*5 APH/CPH,H624*FR APH,H504*FR APH |
| 22 | | F64508660AP | SENSOR COVER B | 1 | T6*5SF APH/CPH,T695SF/SM RPH,T664SFR APH,<br>H6*5 APH/CPH,H624*FR APH,H504*FR APH |
| 24 | | F65434W00AP | SENSOR COVER C | 1 | T6*5SF APH/CPH,T695SF/SM RPH,T664SFR APH,<br>H6*5 APH/CPH,H624*FR APH,H504*FR APH |
| 25 | | F612E5U40AP | INCANDESCENT LAMP (U) | 1 | 125V,60Hz,20W |
| 26 | ⚠ | J61424T00AP | MICRO SWITCH | 1 | (PRIMARY LATCH SWITCH)(V-15G-3C25) |
| 27 | ⚠ | J61414T00AP | MICRO SWITCH | 1 | (SECONDARY LATCH SWITCH)(D3V-16G-3C25) |
| 28 | ⚠ | F61456N60AP | THERMAL CUTOUT | 1 | |
| 30 | ⚠ | J61784T00AP | MICRO SWITCH | 1 | (SHORT SWITCH)(D3V-1G-2C25) |
| 31 | ⚠ | F606Y6G00AP | H.V.INVERTER (U) | 1 | APH,RPH |
| 31 | ⚠ | F606Y6G00CP | H.V.INVERTER (U) | 1 | CPH |
| 32 | ⚠ | 2M261-M32F | MAGNETRON | 1 | APH,RPH |
| 32 | ⚠ | 2M261-M32J | MAGNETRON | 1 | CPH |
| 33 | ⚠ | F62307A00AP | FUSE | 1 | 20A/120V |
| 34 | | F62315G10XN | FUSE HOLDER | 1 | RPH |
| 35 | | F66626K50AP | GROUNDING PLATE | 1 | |
| 36 | | F63265G60AP | TURNTABLE MOTOR | 1 | |
| 37 | ⚠ | F900C4T60CP | AC CORD W/PLUG | 1 | T6*5SF APH,T664SFR APH |
| 37 | ⚠ | F900C4T00AP | AC CORD W/PLUG | 1 | H6*5 APH,S**5 APH/RPH,H624*FR APH,<br>H504*FR APH,T695 RPH |
| 37 | ⚠ | F900C5Y30CP | AC CORD W/PLUG | 1 | CPH |
| 38 | | J692Y7D00AP | NOISE FILTER (U) | 1 | APH |
| 38 | | J692Y4T00CPR | NOISE FILTER (U) | 1 | CPH |

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| 39 | | XTWFA4+12T | SCREW | 4 | FOR MAGNETRON |
| 40 | | XTTFA4+6BN | SCREW | 1 | FOR COVER |
| 42 | | XTCAFA4+12AFM | SCREW | 1 | FOR CABINET BODY SIDE (T695SF/SM,T685SF) |
| 42 | | XTCAFA4+12AFS | SCREW | 1 | FOR CABINET BODY SIDE (T675SF,T665SF,T655SF,T664SFR,H6*5MF) |
| 42 | | XTCAFA4+12AFK | SCREW | 1 | FOR CABINET BODY SIDE (H6*5BF,S**5BF,H624BFR,,H504BFR) |
| 42 | | XTCAFA4+12AFW | SCREW | 1 | FOR CABINET BODY SIDE (H6*5WF,S**5WF/WM,H624WFR,H504WFR) |
| 43 | | XTTANE4T12A0 | SCREW | 4 | FOR CABINET BODY |
| 45 | | F65856K50AP | INVERTER BRACKET | 1 | |
| 46 | | F03346K10AP | MENU LABEL | 1 | T695SF APH,T685SF APH,T675SF APH |
| 46 | | F03346K10CP | MENU LABEL | 1 | T695SF CPH,T685SF CPH |
| 46 | | F03347D00RP | MENU LABEL | 1 | T695SF/SM RPH |
| 46 | | F03345Y30AP | MENU LABEL | 1 | T665SF APH,T655SF APH,T664SFR APH |
| 46 | | F03347D60AP | MENU LABEL | 1 | H665BF/WF APH,H635BF/WF APH |
| 46 | | F03347D60CP | MENU LABEL | 1 | H665BF/WF CPH |
| 46 | | F03347D80AP | MENU LABEL | 1 | S655BF/WF APH |
| 46 | | F03346L20AP | MENU LABEL | 1 | S645MF/BF/WF APH |
| 46 | | F03347E60CP | MENU LABEL | 1 | S615BF/WF CPH |
| 46 | | F03345Y40AP | MENU LABEL | 1 | S635BF/WF APH |
| 46 | | F03347G50RP | MENU LABEL | 1 | S655WF/WM RPH,S645WM RPH |
| 47 | | F02445Y00AP | CAUTION LABEL | 1 | T695SF APH/CPH,T695SF/SM RPH,T685SF APH/CPH |
| 48 | | F40264T60AP | AIR GUIDE B | 1 | |
| 49 | | F04467D00AP | FUNCTION LABEL | 1 | T695SF APH |
| 49 | | F04467D00CP | FUNCTION LABEL | 1 | T695SF CPH |
| 49 | | F04467D00RP | FUNCTION LABEL | 1 | T695SF/SM RPH |
| 50 | | F00066G00RP | CAUTION LABEL | 1 | T695SF/SM RPH |
| 51 | | F00167D00AP | CAUTION LABEL | 1 | T695SF APH |

# 9.3 DOOR ASSEMBLY

| Ref. No. | | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|---|
| D1 | | F3018-1200 | DOOR KEY A | 1 | T6*5 APH/CPH/RPH,T664SFR APH |
| D1 | | F30184Y30XN | DOOR KEY A | 1 | H6*5 APH/CPH,S**5 APH/CPH/RPH |
| D2 | ⚠ | F301A7D00SAP | DOOR A (U) | 1 | T695SF APH/CPH/RPH,T685SF APH/CPH,T675SF APH,T665SF APH |
| D2 | ⚠ | F301A7D40SAP | DOOR A (U) | 1 | T655SF APH |
| D2 | ⚠ | F301A5Y20SAP | DOOR A (U) | 1 | T664SFR APH |
| D2 | ⚠ | F30016K50SAP | DOOR A | 1 | S645MF APH |
| D2 | ⚠ | F30016K50BAP | DOOR A | 1 | H665BF APH/CPH,H635BF APH,S655BF APH, S645BF APH,S615BF CPH,S635BF APH/CPH,S605BF CPH |
| D2 | ⚠ | F30016K50HAP | DOOR A | 1 | H665WF APH/CPH,H635WF APH,S655WF APH,S645WF APH, S615WF CPH,S635WF APH/CPH,S605WF CPH,S6*5WF/WM RPH |
| D2 | ⚠ | F30015Y30BAP | DOOR A | 1 | H645BF APH,H625BF APH,S625BF CPH,H624BFR APH |
| D2 | ⚠ | F30015Y30HAP | DOOR A | 1 | H645WF APH,H625WF APH,S625WF CPH,H624WFR APH |
| D2 | ⚠ | F30015A00BAP | DOOR A | 1 | S505BF APH/CPH,H504BFR APH |
| D2 | ⚠ | F30014T00HAP | DOOR A | 1 | S505WF APH/CPH,H504WFR APH |
| D3 | ⚠ | F302K5L00AP | DOOR E (U) | 1 | EXCEPT S505 APH/CPH,H504*FR APH |
| D3 | ⚠ | F302K4T00AP | DOOR E (U) | 1 | S505 APH/CPH,H504*FR APH |

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| D4 | | F30215G10XN | DOOR KEY SPRING | 1 | |
| D5 | ⚠ | F30854T00AP | DOOR C | 1 | |
| D6 | ⚠ | F31454T00AP | DOOR SCREEN A | 1 | |
| D7 | | F31467D60BAP | DOOR SCREEN B | 1 | H665BF APH/CPH,H635BF APH,S655BF APH,<br>S645BF/MF APH,S635BF CPH,S615BF CPH,S605BF CPH |
| D7 | | F31467D60HAP | DOOR SCREEN B | 1 | H665WF APH/CPH,H635WF APH,S655WF APH,S645WF APH,<br>S635WF CPH,S615WF CPH,S605WF CPH |
| D7 | | F31466K50BAP | DOOR SCREEN B | 1 | S635BF APH,S645WM RPH |
| D7 | | F31466K50HAP | DOOR SCREEN B | 1 | S635WF APH,S655WF/WM RPH |
| D7 | | F31465Y30BAP | DOOR SCREEN B | 1 | H645BF APH,H625BF APH,S625BF CPH,H624BFR APH |
| D7 | | F31465Y30HAP | DOOR SCREEN B | 1 | H645WF APH,H625WF APH,S625WF CPH,H624WFR APH |
| D7 | | F31464T00BAP | DOOR SCREEN B | 1 | S505BF APH/CPH,H504BFR APH |
| D7 | | F31464T00HAP | DOOR SCREEN B | 1 | S505WF APH/CPH,H504WFR APH |
| D8 | | F02459660AP | DHHS LABEL | 1 | T6*5 APH/RPH,S505BF/WF APH,H504BFR/WFR APH |
| D8 | | F04114180CP | HC LABEL | 1 | T6*5SF CPH,S505BF/WF CPH |

# 9.4 ESCUTCHEON BASE ASSEMBLY

## 9.4.1 NN-T695SF APH/CPH, T695SF/SM RPH

| Ref. No. | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|
| E41 | F603L7D00AP | D.P.CIRCUIT (AU) | 1 | T695SF APH |
| E41 | F603L7D00CP | D.P.CIRCUIT (AU) | 1 | T695SF CPH |
| E41 | F603L7D00RP | D.P.CIRCUIT (AU) | 1 | T695SF/SM RPH |
| E42 | F603Y7D00AP | D.P.CIRCUIT (DU) | 1 | T695SF APH |
| E42 | F603Y7D00CP | D.P.CIRCUIT (DU) | 1 | T695SF CPH |
| E42 | F603Y7D00RP | D.P.CIRCUIT (DU) | 1 | T695SF/SM RPH |
| E43 | F800L7D00SAP | ESCUTCHEON BASE (U) | 1 | T695SF APH/CPH,T695SF/SM RPH |
| E44 | F66167D00AP | FLAT CABLE | 1 | T695SF APH/CPH,T695SF/SM RPH |
| E46 | F80725Y00SAP | DOOR OPENING BUTTON | 1 | T6*5 APH/CPH/RPH,T664SFR APH |
| E47 | F82565Y00AP | DOOR OPENING LEVER | 1 | T695SF APH/CPH,T695SF/SM RPH |
| E48 | F80375K00AP | COOK BUTTON SPRING | 1 | |
| E49 | F630Y7D00SAP | MEMBRANE SWITCH (U) | 1 | T695SF APH |
| E49 | F630Y7D00SCP | MEMBRANE SWITCH (U) | 1 | T695SF CPH |
| E49 | F630Y7D00SRP | MEMBRANE SWITCH (U) | 1 | T695SF/SM RPH |
| E50 | F90095X00AP | GROUNDING PANEL | 1 | T6*5 APH/CPH/RPH,T664SFR APH |
| E51 | F803G7D00BAP | POP-UP DIAL (U) | 1 | T695SF APH/CPH,T695SF/SM RPH |
| E52 | F80187D00BAP | BACKSTOP | 1 | T695SF APH/CPH,T695SF/SM RPH |
| E55 | F00077D00AP | NAME PLATE | 1 | T695SF APH |
| E55 | F00077D00CP | NAME PLATE | 1 | T695SF CPH |
| E55 | F00077D00RP | NAME PLATE | 1 | T695SF RPH |
| E55 | F00077G40RP | NAME PLATE | 1 | T695SM RPH |

## 9.4.2 NN-T685SF APH/CPH, T675SF APH

| Ref. No. | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|
| E21 | F603L7D10AP | D.P.CIRCUIT (AU) | 1 | T685SF APH,T675SF APH |
| E21 | F603L7D10CP | D.P.CIRCUIT (AU) | 1 | T685SF CPH |
| E22 | F603Y6K10AP | D.P.CIRCUIT (DU) | 1 | T685SF APH,T675SF APH |
| E22 | F603Y5W00CP | D.P.CIRCUIT (DU) | 1 | T685SF CPH |
| E23 | F800L6K70AP | ESCUTCHEON BASE (U) | 1 | T685SF APH/CPH,T675SF APH |
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| E24 | F66164W20AP | FLAT CABLE | 1 | T685SF APH/CPH,T675SF APH |
| E25 | F82986K10AP | BUTTON | 1 | T685SF APH/CPH,T675SF APH |
| E26 | F80725Y00SAP | DOOR OPENING BUTTON | 1 | T6*5 APH/CPH/RPH,T664SFR APH |
| E27 | F82566K10AP | DOOR OPENING LEVER | 1 | T685SF APH/CPH,T675SF APH |
| E28 | F80375K00AP | COOK BUTTON SPRING | 1 | |
| E29 | F83377D10SAP | MEMBRANE SHEET | 1 | T685SF APH,T675SF APH |
| E29 | F83377D10SCP | MEMBRANE SHEET | 1 | T685SF CPH |
| E30 | F90095X00AP | GROUNDING PANEL | 1 | T6*5 APH/CPH/RPH,T664SFR APH |
| E35 | F00077D10AP | NAME PLATE | 1 | T685SF APH |
| E35 | F00077D10CP | NAME PLATE | 1 | T685SF CPH |
| E35 | F00077D30AP | NAME PLATE | 1 | T675SF APH |

## 9.4.3 NN-H665 APH/CPH, H635 APH, S655 APH, S645 APH, S615 CPH

| Ref. No. | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|
| E81 | F603L7D60AP | D.P.CIRCUIT (AU) | 1 | H665BF/WF APH,H635BF/WF APH |
| E81 | F603L7D60CP | D.P.CIRCUIT (AU) | 1 | H665BF/WF CPH |
| E81 | F603L7D80AP | D.P.CIRCUIT (AU) | 1 | S655BF/WF APH |
| E81 | F603L7E20AP | D.P.CIRCUIT (AU) | 1 | S645MF/BF/WF APH |
| E81 | F603L7E60CP | D.P.CIRCUIT (AU) | 1 | S615BF/WF CPH |
| E82 | F603Y7D60AP | D.P.CIRCUIT (DU) | 1 | H665BF/WF APH,H635BF/WF APH |
| E82 | F603Y7D60CP | D.P.CIRCUIT (DU) | 1 | H665BF/WF CPH |
| E82 | F603Y7D80AP | D.P.CIRCUIT (DU) | 1 | S655BF/WF APH,S645MF/BF/WF APH |
| E82 | F603Y7E60CP | D.P.CIRCUIT (DU) | 1 | S615BF/WF CPH |
| E83 | F80347D60BAP | ESCUTCHEON BASE | 1 | H665BF APH/CPH,H635BF APH,<br>S655BF APH,S645BF APH,S615BF CPH |
| E83 | F80347D60HAP | ESCUTCHEON BASE | 1 | H665WF APH/CPH,H635WF APH,S655WF APH,<br>S645WF APH,S615WF CPH |
| E83 | F80347D60SAP | ESCUTCHEON BASE | 1 | S645MF APH |
| E84 | F66164W20AP | FLAT CABLE | 1 | H665 APH/CPH,H635 APH,S655 APH,<br>S645 APH,S615 CPH |
| E85 | F82987D60KAP | BUTTON | 1 | H665 APH/CPH,H635 APH,S655 APH,<br>S645 APH,S615 CPH |
| E89 | F630Y7D60BAP | MEMBRANE SWITCH (U) | 1 | H665BF APH,H635BF APH |
| E89 | F630Y7D60HAP | MEMBRANE SWITCH (U) | 1 | H665WF APH,H635WF APH |
| E89 | F630Y7D60BCP | MEMBRANE SWITCH (U) | 1 | H665BF CPH |
| E89 | F630Y7D60HCP | MEMBRANE SWITCH (U) | 1 | H665WF CPH |
| E89 | F630Y7D80BAP | MEMBRANE SWITCH (U) | 1 | S655BF APH |
| E89 | F630Y7D80HAP | MEMBRANE SWITCH (U) | 1 | S655WF APH |
| E89 | F630Y7E20SAP | MEMBRANE SWITCH (U) | 1 | S645MF APH |
| E89 | F630Y7E20BAP | MEMBRANE SWITCH (U) | 1 | S645BF APH |
| E89 | F630Y7E20HAP | MEMBRANE SWITCH (U) | 1 | S645WF APH |
| E89 | F630Y7E60BCP | MEMBRANE SWITCH (U) | 1 | S615BF CPH |
| E89 | F630Y7E60HCP | MEMBRANE SWITCH (U) | 1 | S615WF CPH |
| E95 | F00077D60BCP | NAME PLATE | 1 | H665BF CPH |
| E95 | F00077D60HCP | NAME PLATE | 1 | H665WF CPH |
| E95 | F00077E60BCP | NAME PLATE | 1 | S615BF CPH |
| E95 | F00077E60HCP | NAME PLATE | 1 | S615WF CPH |

## 9.4.4 NN-H645 APH, S635 APH/CPH, H625 APH, S625 CPH, S605 CPH, S505 APH/CPH, S655 RPH, S645 RPH, H624*FR APH, H504*FR APH

| Ref. No. | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|
| E101 | F603L7E00AP | D.P.CIRCUIT (AU) | 1 | S635BF/WF APH |

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| E101 | F603L7E80CP | D.P.CIRCUIT (AU) | 1 | S635BF/WF CPH |
| E101 | F603L7E70CP | D.P.CIRCUIT (AU) | 1 | S605BF/WF CPH |
| E101 | F603L7E50AP | D.P.CIRCUIT (AU) | 1 | H625BF/WF APH,H624BFR/WFR APH |
| E101 | F603L7E10AP | D.P.CIRCUIT (AU) | 1 | H645BF/WF APH |
| E101 | F603L7E90CP | D.P.CIRCUIT (AU) | 1 | S625BF/WF CPH |
| E101 | F603L7F00AP | D.P.CIRCUIT (AU) | 1 | H504BFR/WFR APH |
| E101 | F603L7F10AP | D.P.CIRCUIT (AU) | 1 | S505BF/WF APH |
| E101 | F603L7F10CP | D.P.CIRCUIT (AU) | 1 | S505BF/WF CPH |
| E101 | F603L7G50RP | D.P.CIRCUIT (AU) | 1 | S655WF/WM RPH,S645WM RPH |
| E103 | F80346K50BAP | ESCUTCHEON BASE | 1 | S635BF APH/CPH,S605BF CPH |
| E103 | F80346K50HAP | ESCUTCHEON BASE | 1 | S635WF APH/CPH,S605WF CPH,S6*5WF/WM RPH |
| E103 | F80345L00BAP | ESCUTCHEON BASE | 1 | H645BF APH,H625BF APH,S625BF CPH,H624BFR APH |
| E103 | F80345L00HAP | ESCUTCHEON BASE | 1 | H645WF APH,H625WF APH,S625WF CPH,H624WFR APH |
| E103 | F80344T00BAP | ESCUTCHEON BASE | 1 | S505BF APH/CPH,H504BFR APH |
| E103 | F80344T00HAP | ESCUTCHEON BASE | 1 | S505WF APH/CPH,H504WFR APH |
| E109 | F630Y6K80BAP | MEMBRANE SWITCH (U) | 1 | S635BF APH |
| E109 | F630Y6K80HAP | MEMBRANE SWITCH (U) | 1 | S635WF APH |
| E109 | F630Y7E80BCP | MEMBRANE SWITCH (U) | 1 | S635BF CPH |
| E109 | F630Y7E80HCP | MEMBRANE SWITCH (U) | 1 | S635WF CPH |
| E109 | F630Y7E70BCP | MEMBRANE SWITCH (U) | 1 | S605BF CPH |
| E109 | F630Y7E70HCP | MEMBRANE SWITCH (U) | 1 | S605WF CPH |
| E109 | F630Y6L30BAP | MEMBRANE SWITCH (U) | 1 | H625BF APH,H624BFR APH |
| E109 | F630Y6L30HAP | MEMBRANE SWITCH (U) | 1 | H625WF APH,H624WFR APH |
| E109 | F630Y7E10BAP | MEMBRANE SWITCH (U) | 1 | H645BF APH |
| E109 | F630Y7E10HAP | MEMBRANE SWITCH (U) | 1 | H645WF APH |
| E109 | F630Y7E90BCP | MEMBRANE SWITCH (U) | 1 | S625BF CPH |
| E109 | F630Y7E90HCP | MEMBRANE SWITCH (U) | 1 | S625WF CPH |
| E109 | F630Y6M00BAP | MEMBRANE SWITCH (U) | 1 | H504BFR APH |
| E109 | F630Y6M00HAP | MEMBRANE SWITCH (U) | 1 | H504WFR APH |
| E109 | F630Y6M10BAP | MEMBRANE SWITCH (U) | 1 | S505BF APH |
| E109 | F630Y6M10HAP | MEMBRANE SWITCH (U) | 1 | S505WF APH |
| E109 | F630Y7F10BCP | MEMBRANE SWITCH (U) | 1 | S505BF CPH |
| E109 | F630Y7F10HCP | MEMBRANE SWITCH (U) | 1 | S505WF CPH |
| E109 | F630Y7D90HRP | MEMBRANE SWITCH (U) | 1 | S655WF/WM RPH,S645WM RPH |
| E110 | AEDDHJ7E00AP | DISPLAY | 1 | H645 APH,S635 APH/CPH,H625 APH,S625 CPH,S605 CPH, S505 APH/CPH,S6*5 RPH,H624*FR APH,H504*FR APH |
| E111 | F66175L00AP | DISPLAY TUBE COVER | 1 | H645 APH,S635 APH/CPH,H625 APH,S625 CPH,S605 CPH, S6*5 RPH,H624*FR APH |
| | | DISPLAY TUBE | | |

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|---|---|---|---|---|
| E111 | F66174T00AP | COVER | 1 | S505 APH/CPH,H504*FR APH |
| E112 | F67005U40XN | RUBBER CONNECTOR | 1 | H645 APH,S635 APH/CPH,H625 APH,S625 CPH,S605 CPH, S505 APH/CPH,S6*5 RPH,H624*FR APH,H504*FR APH |
| E115 | F00077E80BCP | NAME PLATE | 1 | S635BF CPH |
| E115 | F00077E80HCP | NAME PLATE | 1 | S635WF CPH |
| E115 | F00077E70BCP | NAME PLATE | 1 | S605BF CPH |
| E115 | F00077E70HCP | NAME PLATE | 1 | S605WF CPH |
| E115 | F00077E90BCP | NAME PLATE | 1 | S625BF CPH |
| E115 | F00077E90HCP | NAME PLATE | 1 | S625WF CPH |
| E115 | F00077F10BCP | NAME PLATE | 1 | S505BF CPH |
| E115 | F00077F10HCP | NAME PLATE | 1 | S505WF CPH |

### 9.4.5 NN-T665SF APH, T655SF APH, T664SFR APH

| Ref. No. | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|
| E61 | F603L7D40AP | D.P.CIRCUIT (AU) | 1 | T665SF APH,T655SF APH,T664SFR APH |
| E63 | F800L5Y70SAP | ESCUTCHEON BASE (U) | 1 | T665SF APH |
| E63 | F800L7D40SAP | ESCUTCHEON BASE (U) | 1 | T655SF APH |
| E63 | F800L5Y00BAP | ESCUTCHEON BASE (U) | 1 | T664SFR APH |
| E66 | F80725Y00SAP | DOOR OPENING BUTTON | 1 | T6*5 APH/CPH/RPH,T664SFR APH |
| E67 | F82565Y00AP | DOOR OPENING LEVER | 1 | T665SF APH,T655SF APH,T664SFR APH |
| E68 | F80375K00AP | COOK BUTTON SPRING | 1 | |
| E69 | F630Y7D50SAP | MEMBRANE SWITCH (U) | 1 | T665SF APH |
| E69 | F630Y7D40BAP | MEMBRANE SWITCH (U) | 1 | T655SF APH |
| E69 | F630Y6K30BAP | MEMBRANE SWITCH (U) | 1 | T664SFR APH |
| E74 | F90095X00AP | GROUNDING PANEL | 1 | T6*5 APH/CPH/RPH,T664SFR APH |
| E75 | F00077D50SAP | NAME PLATE | 1 | T665SF APH |
| E75 | F00077D40SAP | NAME PLATE | 1 | T655SF APH |
| E75 | F00076Z40SAP | NAME PLATE | 1 | T664SFR APH |

## 9.5 PACKING AND ACCESSORIES

| Ref. No. | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|
| P1 | F00037D00AP | INSTRUCTION MANUAL | 1 | T695SF APH |
| P1 | F00037D00CP | INSTRUCTION MANUAL | 1 | T695SF CPH |
| P1 | F00037D00RP | INSTRUCTION MANUAL | 1 | T695SF/SM RPH |
| P1 | F00037D10AP | INSTRUCTION MANUAL | 1 | T685SF APH,T675SF APH |
| P1 | F00037D10CP | INSTRUCTION MANUAL | 1 | T685SF CPH |
| P1 | F00037D40AP | INSTRUCTION MANUAL | 1 | T665SF APH,T655SF APH |
| P1 | F00036K50AP | INSTRUCTION MANUAL | 1 | T664SFR APH |
| P1 | F00037E50AP | INSTRUCTION MANUAL | 1 | H665BF/WF APH,H635BF/WF APH, H645BF/WF APH,H625BF/WF APH |
| P1 | F00037D60CP | INSTRUCTION MANUAL | 1 | H665BF/WF CPH |
| P1 | F00037E20AP | INSTRUCTION MANUAL | 1 | S655BF/WF APH,S645MF/BF/WF APH |
| P1 | F00037E60CP | INSTRUCTION MANUAL | 1 | S635BF/WF CPH,S625BF/WF CPH,S615BF/WF CPH |
| P1 | F00036K80AP | INSTRUCTION MANUAL | 1 | S635BF/WF APH |
| P1 | F00037E70CP | INSTRUCTION MANUAL | 1 | S605BF/WF CPH,S505BF/WF CPH |
| P1 | F00036L30AP | INSTRUCTION MANUAL | 1 | H624BFR/WFR APH |
| P1 | F00036L50AP | INSTRUCTION MANUAL | 1 | H504BFR/WFR APH |
| P1 | F00036L60AP | INSTRUCTION MANUAL | 1 | S505BF/WF APH |
| P1 | F00037G50RP | INSTRUCTION MANUAL | 1 | S655WF/WM RPH,S645WM RPH |
| P2 | F01027D00SAP | PACKING CASE ,PAPER | 1 | T695SF APH |
| P2 | F01027D00SCP | PACKING CASE ,PAPER | 1 | T695SF CPH |
| P2 | F01027D00SRP | PACKING CASE ,PAPER | 1 | T695SF RPH |

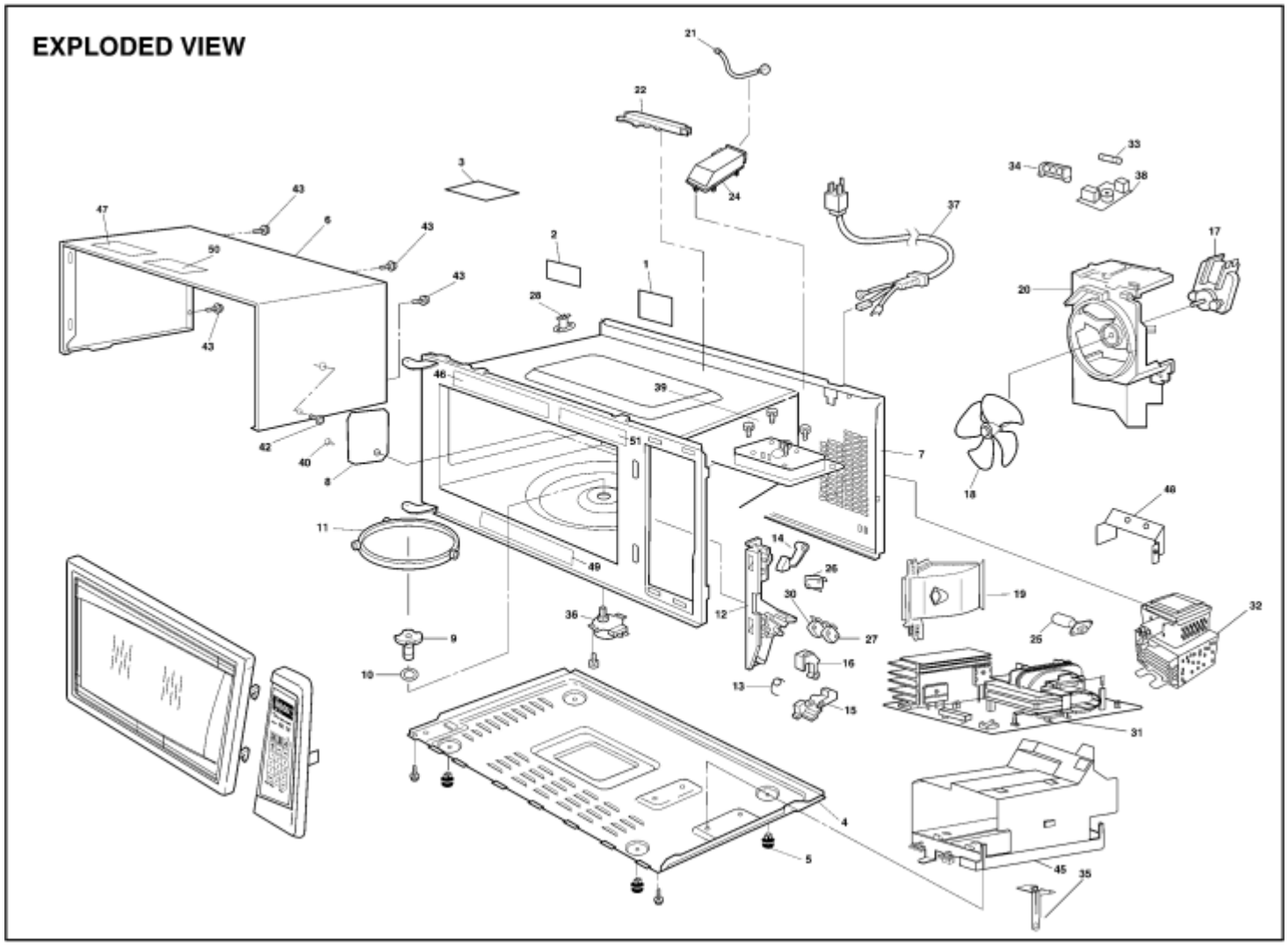
| | | | | |
|---|---|---|---|---|
| P2 | F01027G40SRP | PACKING CASE ,PAPER | 1 | T695SM RPH |
| P2 | F01027D10SAP | PACKING CASE ,PAPER | 1 | T685SF APH |
| P2 | F01027D10SCP | PACKING CASE ,PAPER | 1 | T685SF CPH |
| P2 | F01027D30SAP | PACKING CASE ,PAPER | 1 | T675SF APH |
| P2 | F01027D50SAP | PACKING CASE ,PAPER | 1 | T665SF APH |
| P2 | F01027D40SAP | PACKING CASE ,PAPER | 1 | T655SF APH |
| P2 | F01026Z40SAP | PACKING CASE ,PAPER | 1 | T664SFR APH |
| P2 | F01027D60BAP | PACKING CASE ,PAPER | 1 | H665BF APH |
| P2 | F01027D60HAP | PACKING CASE ,PAPER | 1 | H665WF APH |
| P2 | F01027D60BCP | PACKING CASE ,PAPER | 1 | H665BF CPH |
| P2 | F01027D60HCP | PACKING CASE ,PAPER | 1 | H665WF CPH |
| P2 | F01027F50BAP | PACKING CASE ,PAPER | 1 | H635BF APH |
| P2 | F01027F50HAP | PACKING CASE ,PAPER | 1 | H635WF APH |
| P2 | F01027D80BAP | PACKING CASE ,PAPER | 1 | S655BF APH |
| P2 | F01027D80HAP | PACKING CASE ,PAPER | 1 | S655WF APH |
| P2 | F01027E20SAP | PACKING CASE ,PAPER | 1 | S645MF APH |
| P2 | F01027E20BAP | PACKING CASE ,PAPER | 1 | S645BF APH |
| P2 | F01027E20HAP | PACKING CASE ,PAPER | 1 | S645WF APH |
| P2 | F01027E60BCP | PACKING CASE ,PAPER | 1 | S615BF CPH |
| P2 | F01027E60HCP | PACKING CASE ,PAPER | 1 | S615WF CPH |
| P2 | F01027E00BAP | PACKING CASE ,PAPER | 1 | S635BF APH |
| P2 | F01027E00HAP | PACKING CASE ,PAPER | 1 | S635WF APH |
| P2 | F01027E80BCP | PACKING CASE ,PAPER | 1 | S635BF CPH |
| P2 | F01027E80HCP | PACKING CASE ,PAPER | 1 | S635WF CPH |
| P2 | F01027E70BCP | PACKING CASE ,PAPER | 1 | S605BF CPH |
| P2 | F01027E70HCP | PACKING CASE ,PAPER | 1 | S605WF CPH |
| P2 | F01026Z50BAP | PACKING CASE ,PAPER | 1 | H624BFR APH |
| P2 | F01026Z50HAP | PACKING CASE ,PAPER | 1 | H624WFR APH |
| P2 | F01027E10BAP | PACKING CASE ,PAPER | 1 | H645BF APH |
| P2 | F01027E10HAP | PACKING CASE ,PAPER | 1 | H645WF APH |
| P2 | F01027E50BAP | PACKING CASE ,PAPER | 1 | H625BF APH |
| P2 | F01027E50HAP | PACKING CASE ,PAPER | 1 | H625WF APH |
| P2 | F01027E90BCP | PACKING CASE ,PAPER | 1 | S625BF CPH |
| P2 | F01027E90HCP | PACKING CASE ,PAPER | 1 | S625WF CPH |
| P2 | F01027F10BAP | PACKING CASE ,PAPER | 1 | S505BF APH |
| P2 | F01027F10HAP | PACKING CASE ,PAPER | 1 | S505WF APH |
| P2 | F01027F10BCP | PACKING CASE ,PAPER | 1 | S505BF CPH |
| P2 | F01027F10HCP | PACKING CASE ,PAPER | 1 | S505WF CPH |
| P2 | F01027F00BAP | PACKING CASE ,PAPER | 1 | H504BFR APH |
| P2 | F01027F00HAP | PACKING CASE ,PAPER | 1 | H504WFR APH |
| P2 | F01027D90HRP | PACKING CASE ,PAPER | 1 | S655WF RPH |
| P2 | F01027G50HRP | PACKING CASE ,PAPER | 1 | S655WM RPH |
| P2 | F01027G60HRP | PACKING CASE ,PAPER | 1 | S645WM RPH |
| P3 | F01046K50AP | UPPER FILLER | 1 | EXCEPT S505 APH/CPH,H504*FR APH |
| P3 | F01045L30AP | UPPER FILLER | | S505 APH/CPH,H504*FR APH |
| P4 | F01055L00AP | LOWER FILLER | 1 | EXCEPT S505 APH/CPH,H504*FR APH |
| P4 | F01054T00AP | LOWER FILLER | | S505 APH/CPH,H504*FR APH |
| P5 | F01068100XN | P.E.BAG | 1 | |
| P6 | F01078100XN | DOOR SHEET | 1 | |
| P7 | F01085T20RP | TRAY PACKING | 1 | S505 APH/CPH,H504*FR APH |
| P8 | F06014T00AP | COOKING TRAY | 1 | |
| P9 | F01924T00AP | SHEET | 1 | H**5BF,S**5MF/BF,H624BFR,H504BFR |
| P10 | F00065G40AP | CAUTION LABEL | 1 | APH,RPH |
| P11 | F04457D00SCP | OVERLAY | 1 | T695SF CPH |
| P11 | F04457D10SCP | OVERLAY | 1 | T685SF CPH |
| P11 | F04457D60BCP | OVERLAY | 1 | H665BF CPH |
| P11 | F04457D60HCP | OVERLAY | 1 | H665WF CPH |
| P11 | F04457E60BCP | OVERLAY | 1 | S615BF CPH |
| P11 | F04457E60HCP | OVERLAY | 1 | S615WF CPH |

| | | | | |
|---|---|---|---|---|
| P11 | F04457E80BCP | OVERLAY | 1 | S635BF CPH |
| P11 | F04457E80HCP | OVERLAY | 1 | S635WF CPH |
| P11 | F04457E70BCP | OVERLAY | 1 | S605BF CPH |
| P11 | F04457E70HCP | OVERLAY | 1 | S605WF CPH |
| P11 | F04457E90BCP | OVERLAY | 1 | S625BF CPH |
| P11 | F04457E90HCP | OVERLAY | 1 | S625WF CPH |
| P11 | F04457F10BCP | OVERLAY | 1 | S505BF CPH |
| P11 | F04457F10HCP | OVERLAY | 1 | S505WF CPH |

# 9.6 WIRING MATERIALS

| Ref. No. | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|
| W1 | F030A7D00AP | LEAD WIRE HARNESS | 1 | APH |
| W1 | F030A7D00CP | LEAD WIRE HARNESS | 1 | CPH |
| W1 | F030A7D00RP | LEAD WIRE HARNESS | 1 | RPH |
| W2 | F030E5L00AP | H.V.LEAD WIRE | 1 | APH,RPH |
| W2 | F030E4T00CP | H.V.LEAD WIRE | 1 | CPH |

## EXPLODED VIEW



# 10 DIGITAL PROGRAMMER CIRCUIT

## 10.1 NN-T695SF APH/CPH, T695SF/SM RPH

## 10.2 NN-T685SF APH/CPH, T675SF APH

## 10.3 NN-T665SF APH, T655SF APH, T664SFR APH

## 10.4 NN-H665 APH/CPH, H635 APH, S655 APH, S645 APH, S615 CPH

## 10.5 NN-H645 APH, S635 APH/CPH, H625 APH, S625 CPH, S605 CPH,

## S505 APH/CPH, S655 RPH, S645 RPH, H624*FR APH, H504*FR APH

# 10.6 PARTS LIST

## 10.6.1 NN-T695SF APH/CPH, T695SF/SM RPH

| Ref. No. | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|
| BZ210 | AEFBAT2001WQ | BUZZER | 1 | 2.0KHz |
| C352 | AECUU06C101J | CHIP CAPACITOR | 1 | 100PF/50V |
| C40-C48,C330,C331 | AECUU06R102K | CHIP CAPACITOR | 11 | 1000PF/50V |
| C80,C81,C222,C228,C484,C486 | AECUU06F103Z | CHIP CAPACITOR | 6 | 0.01µF/50V |
| C481 | AECUU06F473Z | CHIP CAPACITOR | 1 | 0.047µF/50V |
| C15,C223,C350,C441 | AECUT06F104Z | CHIP CAPACITOR | 4 | 0.1µF/25V |
| C220,C221 | AECUN06F105Z | CHIP CAPACITOR | 2 | 1µF/10V |
| C10 | AECETK1V471B | AL CHEM CAPACITOR | 1 | 470µF/35V |
| C16 | AECETS1C220B | AL CHEM CAPACITOR | 1 | 22µF/16V |
| C482 | AECETS1H010B | AL CHEM CAPACITOR | 1 | 1µF/50V |
| C483 | AECETS1HR47B | AL CHEM CAPACITOR | 1 | 0.47µF/50V |
| C485 | AECETS1H2R2B | AL CHEM CAPACITOR | 1 | 2.2µF/50V |
| CN1 | K1KA03AA0108 | CONNECTOR | 1 | |
| CN2 | K1KA03A00300 | CONNECTOR | 1 | 3 Pin |
| CN3 | F03524U50AP | INV. HARNESS (U) | 1 | |
| CN4 | K1KA04AA0086 | CONNECTOR | 1 | |
| CN6 | AEEM9604S17C | CONNECTOR | 1 | 17 Pin |
| CN7 | AEEM9604S17F | CONNECTOR | 1 | |
| CN8 | K1MN09BA0072 | CONNECTOR | 1 | |
| CN9 | F03547B40AP | CONNECTOR | 1 | 3 Pin |
| CX320 | EFOEC8004A4 | CERAMIC RESONATOR | 1 | 8MHz |
| IC1 | MN101C54CFY | L.S.I. | 1 | |
| IC480 | C0ABBZ000017 | IC | 1 | |
| DISP110 | AEDDHJ4M00AP | LCD | 1 | |
| DISPL1 | F66175E40XN | LCD HOLDER | 1 | |
| | F67525E40XN | DIFFUSION SHEET | 1 | |
| Q220,Q225 | B1ABCF000010 | CHIP TRANSISTOR | 2 | |
| Q221 | B1ADCF000003 | CHIP TRANSISTOR | 1 | |
| Q181 | B1ABCF000010 | CHIP TRANSISTOR | 1 | |
| Q182,Q210 | B1GBCFEL0002 | CHIP DIGI-TRANSISTOR | 2 | |
| Q222 | B1GDCFJJ0002 | CHIP DIGI-TRANSISTOR | 1 | |
| Q223 | B1GBCFEL0002 | CHIP DIGI-TRANSISTOR | 1 | (CPH) |
| Q10,Q180 | B1BAAJ000003 | TRANSISTOR | 2 | |
| D180-D189 | AESQPY1112CK | CHIP-LED | 10 | |
| D40,D220-D223,D227 | B0AACK000004 | DIODE | 6 | |
| D10,D11,D12,D13 | AESSRCT1A6-E | DIODE | 4 | |
| D25 | AERZ271KSBN | VARISTOR | 1 | 270V |
| D26,D27 | AERZ102KSBN | VARISTOR | 2 | 1000V (CPH,RPH) |
| R11,R16,R221 | AERDY2TJ102T | CARBON FILM RESISTOR | 3 | 1KΩ,1/4W,5% |
| R12,R180 | AERDY2TJ103T | CARBON FILM RESISTOR | 2 | 10KΩ,1/4W,5% |
| R290 | AERDY2TJ104T | CARBON FILM RESISTOR | 1 | 100KΩ,1/4W,5% |
| ZD10 | B0BA5R600016 | ZENER DIODE | 1 | |
| RY1 | AEBGJQC25F18 | POWER RELAY | 1 | |
| RY2 | K6B1AZA00011 | POWER RELAY | 1 | (CPH) |
| T10 | AETP284T0AP | LOW VOLTAGE TRANSFORMER | 1 | |
| RE80 | EVEJ1HF2224B | REVOLVING ENCODER | 1 | |
| VZ1 | AEVNNV6TL103 | VARISTOR | 1 | 10KΩ |

## 10.6.2 NN-T685SF APH/CPH, NN-T675SF APH

| Ref. No. | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|
| BZ310 | AEFBAT2001WQ | BUZZER | 1 | 2.0KHz |
| | | | | |

| | | | | |
|---|---|---|---|---|
| C343 | AECUU06C101J | CHIP CAPACITOR | 1 | 100PF/50V |
| C330,C331 | AECUU06R102K | CHIP CAPACITOR | 2 | 1000PF/50V |
| C221,C222,C486,C484 | AECUU06F103Z | CHIP CAPACITOR | 4 | 0.01µF/50V |
| C481 | AECUU06F473Z | CHIP CAPACITOR | 1 | 0.047µF/50V |
| C12,C340,C440 | AECUT06F104Z | CHIP CAPACITOR | 3 | 0.1µF/25V |
| C223,C224 | AECUN06F105Z | CHIP CAPACITOR | 2 | 1µF/10V |
| C10 | AECETK1V471B | AL CHEM CAPACITOR | 1 | 470µF/35V |
| C13 | AECETS1C220B | AL CHEM CAPACITOR | 1 | 22µF/16V |
| C482 | AECETS1H010B | AL CHEM CAPACITOR | 1 | 1µF/50V |
| C483 | AECETS1HR47B | AL CHEM CAPACITOR | 1 | 0.47µF/50V |
| C485 | AECETS1H2R2B | AL CHEM CAPACITOR | 1 | 2.2µF/50V |
| CN1 | K1KA03AA0108 | CONNECTOR | 1 | 5 Pin |
| CN2 | AEEMMF00703W | CONNECTOR | 1 | 3 Pin |
| CN3 | F03524U50AP | INV. HARNESS (U) | 1 | |
| CN4 | K1KA04AA0086 | CONNECTOR | 1 | |
| CN5 | AEEM9604S15F | CONNECTOR | 1 | 15 Pin |
| CN6 | AEEM9604S15C | CONNECTOR | 1 | |
| PIN1,PIN2 | AEPINIPS-1E7 | PIN | 2 | |
| CX320 | EFOEC8004A4 | CERAMIC RESONATOR | 1 | 8MHz |
| IC1 | MN101C54CWT | L.S.I. | 1 | |
| IC480 | C0ABBZ000017 | IC | 1 | |
| DISP110 | AEDDHJ5W00AP | LCD | 1 | |
| DISPL1 | F66175W00AP | LCD HOLDER | 1 | |
| | F67525E40XN | DIFFUSION SHEET | 1 | |
| D180-D189 | AESQPY1112H | CHIP-LED | 10 | |
| D220,D221,D225 | B0AACK000004 | DIODE | 3 | |
| D223 | B0AACK000004 | DIODE | 1 | (CPH) |
| D10,D11,D12,D13 | AESSRCT1A6-E | DIODE | 4 | |
| D40,D226,D227 | B0AACK000004 | DIODE | 3 | |
| D25 | AERZ271KD10N | VARISTOR | 1 | 270V |
| D26,D27 | AERZ102KD10N | VARISTOR | 2 | 1100V (CPH) |
| Q224 | B1GBCFEL0002 | CHIP DIGI-TRANSISTOR | 1 | |
| Q223 | B1GBCFEL0002 | CHIP DIGI-TRANSISTOR | 1 | (CPH) |
| Q226 | B1GDCFJJ0002 | CHIP DIGI-TRANSISTOR | 1 | |
| Q182 | B1GBCFEL0002 | CHIP DIGI-TRANSISTOR | 1 | |
| Q181,Q220,Q225 | B1ABCF000010 | CHIP TRANSISTOR | 3 | |
| Q227 | B1ADCF000003 | CHIP TRANSISTOR | 1 | |
| Q10,Q180 | B1BAAJ000003 | TRANSISTOR | 2 | |
| R10,R11,R311 | AERDY2TJ102T | CARBON FILM RESISTOR | 3 | 1KΩ,1/4W,5% |
| R12,R180 | AERDY2TJ103T | CARBON FILM RESISTOR | 2 | 10KΩ,1/4W,5% |
| R290 | AERDY2TJ104T | CARBON FILM RESISTOR | 1 | 100KΩ,1/4W,5% |
| VZ340 | AEVNNV6TL103 | VARISTOR | 1 | 10KΩ |
| RY1 | AEBGJQC25F18 | POWER RELAY | 1 | |
| RY2 | K6B1AZA00011 | POWER RELAY | 1 | (CPH) |
| ZD10 | B0BA5R600016 | ZENER DIODE | 1 | |
| T10 | AETP284T0AP | LOW VOLTAGE TRANSFORMER | 1 | 120V |
| SW1-SW4,SW6-SW9,SW11, SW16,SW17,SW19-SW30 | EVQ11L05R | SWITCH | 23 | |

## 10.6.3 NN-T665SF APH, T655SF APH, T664SFR APH

| Ref. No. | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|
| BZ210 | AEFBAT2001WQ | BUZZER | 1 | 2.0KHz |
| C352 | AECUU06C101J | CHIP CAPACITOR | 1 | 100PF/50V |
| C330 | AECUU06R102K | CHIP CAPACITOR | 1 | 1000PF/50V |
| C222,C486 | AECUU06F103Z | CHIP CAPACITOR | 2 | 0.01µF/50V |
| C481 | AECUU06F473Z | CHIP CAPACITOR | 1 | 0.047µF/50V |
| C11,C223,C350,C440 | AECUT06F104Z | CHIP CAPACITOR | 4 | 0.1µF/25V |
| | | | | |

| | | | | |
|---|---|---|---|---|
| C220,C221 | AECUN06F105Z | CHIP CAPACITOR | 2 | 1μF/10V |
| C12 | AECETK1V471B | AL CHEM CAPACITOR | 1 | 470μF/35V |
| C13,C16 | AECETS1C220B | AL CHEM CAPACITOR | 2 | 22μF/16V |
| C482 | AECETS1H010B | AL CHEM CAPACITOR | 1 | 1μF/50V |
| C483 | AECETS1HR47B | AL CHEM CAPACITOR | 1 | 0.47μF/50V |
| C485 | AECETS1H2R2B | AL CHEM CAPACITOR | 1 | 2.2μF/50V |
| CN1 | K1KA03AA0108 | CONNECTOR | 1 | |
| CN2 | AEEMMF00703W | CONNECTOR | 1 | 3 Pin |
| CN3 | F03524U50AP | INV. HARNESS (U) | 1 | |
| CN4 | K1KA04AA0086 | CONNECTOR | 1 | |
| CX320 | EFOEC8004A4 | CERAMIC RESONATOR | 1 | 8MHz |
| IC1 | MN101C78ADD | L.S.I. | 1 | |
| IC350 | C0EBE0000401 | IC | 1 | |
| IC480 | C0ABBZ000017 | IC | 1 | |
| DISP110 | AEDDHJ7D40AP | LCD | 1 | |
| DISPL1 | F66174U20AP | LCD HOLDER | 1 | |
| Q220 | B1ADCF000003 | CHIP TRANSISTOR | 1 | |
| Q11,Q181,Q224,Q231 | B1ABCF000010 | CHIP TRANSISTOR | 4 | |
| Q182,Q210,Q331 | B1GBCFEL0002 | CHIP DIGI-TRANSISTOR | 3 | |
| Q222,Q330 | B1GDCFJJ0002 | CHIP DIGI-TRANSISTOR | 2 | |
| Q10,Q180 | B1BAAJ000003 | TRANSISTOR | 2 | |
| D180-D183 | AESQPY1112CK | CHIP-LED | 4 | |
| D10,D11,D12,D13 | AESSRCT1A6-E | DIODE | 4 | |
| D220-D222,D224,D227 | B0AACK000004 | DIODE | 5 | |
| D480 | AEDNRB721Q | DIODE | 1 | |
| D25 | AERZ271KSBN | VARISTOR | 1 | 270V |
| R221 | AERDY2TJ102T | CARBON FILM RESISTOR | 1 | 1KΩ,1/4W,5% |
| R228,R352 | AERDY2TJ104T | CARBON FILM RESISTOR | 2 | 100KΩ,1/4W,5% |
| R225 | AERDY2TJ470T | CARBON FILM RESISTOR | 1 | 47Ω,1/4W,5% |
| ZD10 | B0BA5R600016 | ZENER DIODE | 1 | |
| ZD11 | B0BA4R400002 | ZENER DIODE | 1 | |
| RY1 | AEBGJQC25F18 | POWER RELAY | 1 | |
| T10 | AETP284T0AP | LOW VOLTAGE TRANSFORMER | 1 | |
| VZ1 | AEVNNV6TL103 | VARISTOR | 1 | 10KΩ |

## 10.6.4 NN-H665 APH/CPH, H635 APH, S655 APH, S645 APH, S615 CPH

| Ref. No. | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|
| BZ310 | AEFBAT2001WQ | BUZZER | 1 | 2.0KHz |
| C352 | AECUU06C101J | CHIP CAPACITOR | 1 | 100PF/50V |
| C330 | AECUU06R102K | CHIP CAPACITOR | 1 | 1000PF/50V |
| C222 | AECUU06F103Z | CHIP CAPACITOR | 1 | 0.01μF/50V |
| C484,C486 | AECUU06F103Z | CHIP CAPACITOR | 2 | 0.01μF/50V (H6*5 APH/CPH) |
| C481 | AECUU06F473Z | CHIP CAPACITOR | 1 | 0.047μF/50V (H6*5 APH/CPH) |
| C15,C223,C350,C441 | AECUT06F104Z | CHIP CAPACITOR | 4 | 0.1μF/25V |
| C220,C221 | AECUN06F105Z | CHIP CAPACITOR | 2 | 1μF/10V |
| C10 | AECETK1V471B | AL CHEM CAPACITOR | 1 | 470μF/35V |
| C16 | AECETS1C220B | AL CHEM CAPACITOR | 1 | 22μF/16V |
| C482 | AECETS1H010B | AL CHEM CAPACITOR | 1 | 1μF/50V (H6*5 APH/CPH) |
| C483 | AECETS1HR47B | AL CHEM CAPACITOR | 1 | 0.47μF/50V (H6*5 APH/CPH) |
| C485 | AECETS1H2R2B | AL CHEM CAPACITOR | 1 | 2.2μF/50V (H6*5 APH/CPH) |
| C13 | AECETS1C220B | AL CHEM CAPACITOR | 1 | 22μF/16V |
| CN1 | K1KA03AA0108 | CONNECTOR | 1 | 5Pin |
| CN2 | AEEMMF00703W | CONNECTOR | 1 | 3Pin (H6*5 APH/CPH) |
| CN4 | K1KA04AA0086 | CONNECTOR | 1 | |
| | | | | |

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|---|---|---|---|---|
| CN3 | F03524U50AP | INV. HARNESS (U) | 1 | |
| CN6 | AEEM9604S15C | CONNECTOR | 1 | |
| CN7 | AEEM9604S15F | CONNECTOR | 1 | 15 Pin |
| CN8 | K1MN09BA0072 | CONNECTOR | 1 | |
| CN9,CN10 | F03547B40AP | CONNECTOR | 2 | 3 Pin |
| CN13,CN14 | AEPINIPS-1E7 | PIN | 2 | |
| CX320 | EFOEC8004A4 | CERAMIC RESONATOR | 1 | 8.0MHz |
| IC1 | MN101C78ADD | L.S.I. | 1 | |
| IC350 | C0EBE0000401 | IC | 1 | |
| IC480 | C0ABBZ000017 | IC | 1 | (H6*5 APH/CPH) |
| DISP110 | AEDDHJ7B40AP | LCD | 1 | |
| | F66177D60AP | LCD HOLDER | 1 | |
| Q221 | B1ADCF000003 | CHIP TRANSISTOR | 1 | |
| Q11,Q181,Q220,Q225 | B1ABCF000010 | CHIP TRANSISTOR | 4 | |
| Q222,Q330 | B1GDCFJJ0002 | CHIP DIGI-TRANSISTOR | 2 | |
| Q182,Q224,Q331 | B1GBCFEL0002 | CHIP DIGI-TRANSISTOR | 3 | |
| Q223 | B1GBCFEL0002 | CHIP DIGI-TRANSISTOR | 1 | (CPH) |
| Q10,Q180 | B1BAAJ000003 | TRANSISTOR | 2 | |
| D180-D183 | AESQPY1112CK | CHIP-LED | 4 | |
| D40,D220,D221,D225,D227 | B0AACK000004 | DIODE | 5 | |
| D223 | B0AACK000004 | DIODE | 1 | (CPH) |
| D10,D11,D12,D13 | AESSRCT1A6-E | DIODE | 4 | |
| D480 | AEDNRB721Q | DIODE | 1 | (H6*5 APH/CPH) |
| D25 | AERZ271KSBN | VARISTOR | 1 | 270V |
| D26,D27 | AERZ102KSBN | VARISTOR | 2 | 1100V (CPH) |
| R10,R11,R44,R311 | AERDY2TJ102T | CARBON FILM RESISTOR | 4 | 1KΩ,1/4,5% |
| R12 | AERDY2TJ103T | CARBON FILM RESISTOR | 1 | 10KΩ,1/4,5% |
| R290 | AERDY2TJ104T | CARBON FILM RESISTOR | 1 | 100KΩ,1/4,5% |
| ZD10 | B0BA5R600016 | ZENER DIODE | 1 | |
| ZD11 | B0BA4R400002 | ZENER DIODE | 1 | |
| RY1 | AEBGJQC25F18 | POWER RELAY | 1 | |
| RY2 | K6B1AZA00011 | POWER RELAY | 1 | (CPH) |
| T10 | AETP284T0AP | LOW VOLTAGE TRANSFORMER | 1 | 120V |
| VZ340 | AEVNNV6TL103 | VARISTOR | 1 | 10KΩ |
| SW1,SW2,SW10,SW12,SW13 | EVQ11L05R | SWITCH | 5 | |

## 10.6.5 NN-H645 APH, S635 APH/CPH, H625 APH, S625 CPH, S605 CPH, S505 APH/CPH, S655 RPH, S645 RPH, H624*FR APH, H504*FR APH

| Ref. No. | Part No. | Part Name & Description | Pcs/Set | Remarks |
|---|---|---|---|---|
| BZ210 | AEFBAT2001WQ | BUZZER | 1 | 2.0KHz |
| C352 | AECUU06C101J | CHIP CAPACITOR | 1 | 100PF/50V |
| C330 | AECUU06R102K | CHIP CAPACITOR | 1 | 1000PF/50V |
| C222,C228 | AECUU06F103Z | CHIP CAPACITOR | 2 | 0.01μF/50V |
| C486 | AECUU06F103Z | CHIP CAPACITOR | 1 | 0.01μF/50V (H6*5 APH,H624 *FR APH,H504*FR APH) |
| C481 | AECUU06F473Z | CHIP CAPACITOR | 1 | 0.047μF/50V (H6*5 APH,H624 *FR APH,H504*FR APH) |
| C11,C223,C350,C440 | AECUT06F104Z | CHIP CAPACITOR | 4 | 0.1μF/25V |
| C220,C221 | AECUN06F105Z | CHIP CAPACITOR | 2 | 1μF/10V |
| C12 | AECETK1V471B | AL CHEM CAPACITOR | 1 | 470μF/35V |
| C13 | AECETS1C220B | AL CHEM CAPACITOR | 1 | 22μF/16V |
| C482 | AECETS1H010B | AL CHEM CAPACITOR | 1 | 1μF/50V (H6*5 APH,H624*F R APH,H504*FR APH) |
| C483 | AECETS1HR47B | AL CHEM CAPACITOR | 1 | 0.47μF/50V (H6*5 APH,H624*F R APH,H504*FR APH) |
| C485 | AECETS1H2R2B | AL CHEM CAPACITOR | 1 | 2.2μF/50V (H6*5 APH,H624*F R APH,H504*FR APH) |
| CN1 | K1KA03AA0108 | CONNECTOR | 1 | |

| | | | | |
|---|---|---|---|---|
| CN2 | AEEMMF00703W | CONNECTOR | 1 | 3 Pin (H6*5 APH,H624*FR APH,H504*FR APH) |
| CN3 | F03524U50AP | INV. HARNESS (U) | 1 | |
| CN4 | K1KA04AA0086 | CONNECTOR | 1 | |
| CX320 | EFOEC8004A4 | CERAMIC RESONATOR | 1 | 8MHz |
| IC1 | MN101C78ADD | L.S.I. | 1 | |
| IC350 | C0EBE0000401 | IC | 1 | |
| IC480 | C0ABBZ000017 | IC | 1 | (H6*5 APH,H624*F R APH,H504*FR APH) |
| Q220 | B1ADCF000003 | CHIP TRANSISTOR | 1 | |
| Q11,Q40,Q181,Q224,Q231 | B1ABCF000010 | CHIP TRANSISTOR | 5 | |
| Q222,Q330 | B1GDCFJJ0002 | CHIP DIGI-TRANSISTOR | 2 | |
| Q182,Q210,Q331 | B1GBCFEL0002 | CHIP DIGI-TRANSISTOR | 3 | |
| Q225 | B1GBCFEL0002 | CHIP DIGI-TRANSISTOR | 1 | (CPH) |
| Q10,Q180 | B1BAAJ000003 | TRANSISTOR | 2 | |
| D180-D183 | AESQPY1112CK | CHIP-LED | 4 | |
| D220-D222,D224,D227 | B0AACK000004 | DIODE | 5 | |
| D225 | B0AACK000004 | DIODE | 1 | (CPH) |
| D10,D11,D12,D13 | AESSRCT1A6-E | DIODE | 4 | |
| D480 | AEDNRB721Q | DIODE | 1 | (H6*5 APH,H624*FR APH,H504*FR APH) |
| D25 | AERZ271KSBN | VARISTOR | 1 | 270V |
| D26,D27 | AERZ102KSBN | VARISTOR | 2 | 1100V (CPH,RPH) |
| R225 | AERDY2TJ470T | CARBON FILM RESISTOR | 1 | 47Ω,1/4W,5% |
| R226 | AERDY2TJ471T | CARBON FILM RESISTOR | 1 | 470Ω,1/4W,5% |
| ZD10 | B0BA5R600016 | ZENER DIODE | 1 | |
| ZD11 | B0BA4R400002 | ZENER DIODE | 1 | |
| RY1 | AEBGJQC25F18 | POWER RELAY | 1 | |
| RY2 | K6B1AZA00011 | POWER RELAY | 1 | (CPH) |
| T10 | AETP284T0AP | LOW VOLTAGE TRANSFORMER | 1 | |
| VZ1 | AEVNNV6TL103 | VARISTOR | 1 | 10KΩ |

01/05

S-7D0, S-7D1

S-7D3, S-7D4

S-7D5, S-7D6

S-7D8, S-7D9

S-7E0, S-7E1

S-7E2, S-7E5

S-7E6, S-7E7

S-7E8, S-7E9

S-7F0, S-7F1

S-7F5, S-7G4

S-7G5, S-7G6

S-6Z4, S-6Z5

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